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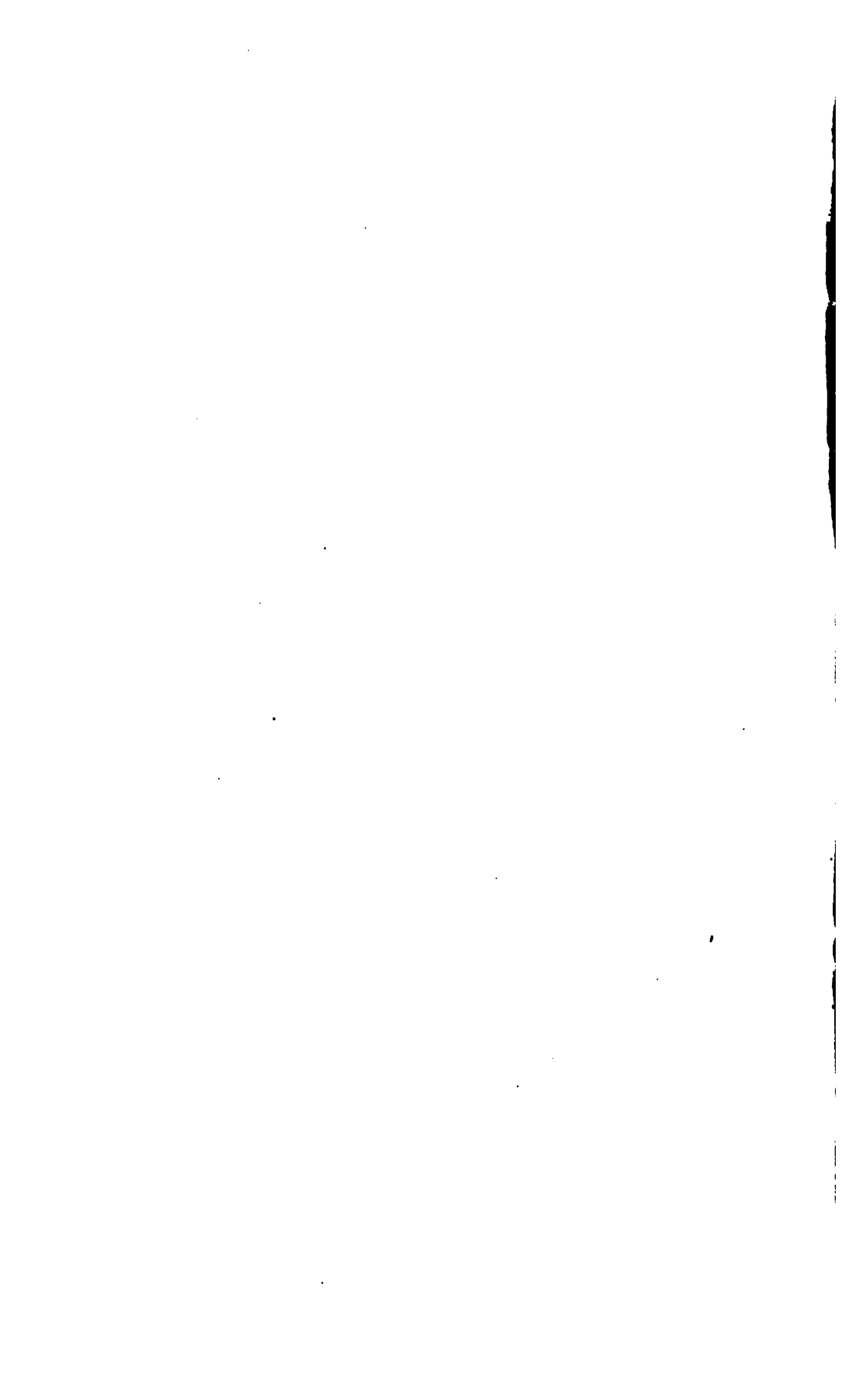
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BULLETIN
OF THE
UNITED STATES NATIONAL MUSEUM.
No. 50.

THE BIRDS
OF
NORTH AND MIDDLE AMERICA.

BY
ROBERT RIDGWAY,
CURATOR, DIVISION OF BIRDS.

PART III.



WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1904.

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1904.

THE BIRDS

OF

NORTH AND MIDDLE AMERICA:

A DESCRIPTIVE CATALOGUE

OF THE

HIGHER GROUPS, GENERA, SPECIES, AND SUBSPECIES OF BIRDS
KNOWN TO OCCUR IN NORTH AMERICA, FROM THE
ARCTIC LANDS TO THE ISTHMUS OF PANAMA,
THE WEST INDIES AND OTHER ISLANDS
OF THE CARIBBEAN SEA, AND THE
GALAPAGOS ARCHIPELAGO.

BY

ROBERT RIDGWAY,

CURATOR, DIVISION OF BIRDS.

PART III.

Family MOTACILLIDÆ—The Wagtails and Pipits.

Family HIRUNDINIDÆ—The Swallows.

Family AMPELIDÆ—The Waxwings.

Family PTILOGONATIDÆ—The Silky Flycatchers.

Family DULIDÆ—The Palm Chats.

Family VIREONIDÆ—The Vireos.

Family LANIIDÆ—The Shrikes.

Family SYLVIIDÆ—The Warblers.

Family CORVIDÆ—The Crows and Jays.

Family PARIDÆ—The Titmice.

Family SITTIDÆ—The Nuthatches.

Family CERCITHIDÆ—The Creepers.

Family TROGLODYTIDÆ—The Wrens.

Family CINCLIDÆ—The Dippers.

Family CHAMÆIDÆ—The Wren-Tits.

WASHINGTON:

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1904.

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PREFACE.

Although nearly five hundred pages of the present volume were printed during the year 1903, the author's inability to complete the manuscript in time necessitated suspension of presswork until July, 1904; hence publication of the volume has been delayed much beyond the anticipated date.

Part I, issued in 1901, included the Family Fringillidæ (Finches) alone. Part II, issued in 1902, included the families Tanagridæ (Tanagers), Icteridæ (Troupials), Cœrebidæ (Honey Creepers), and Mniotiltidæ (Wood Warblers). The present volume comprises the Motacillidæ (Wagtails and Pipits), Hirundinidæ (Swallows), Ampelidæ (Waxwings), Ptilogonatidæ (Silky Flycatchers), Dulidæ (Palm Chats), Vireonidæ (Vireos), Laniidæ (Shrikes), Corvidæ (Crows and Jays), Paridæ (Titmice), Sittidæ (Nuthatches), Certhiidæ (Creepers), Troglodytidæ (Wrens), Cinclidæ (Dippers), Chamæidæ (Wren-Tits), and Sylviidæ (Warblers). Part IV, which is about half completed, includes the Turdidæ (Thrushes), Mimidæ (Mockingbirds), Alaudidæ (Larks), Sturnidæ (Starlings), Ploceidæ (Weaver Birds), Oxyruncidæ (Sharp-bills), Tyrannidæ (Tyrant Flycatchers), Pipridæ (Manakins), and Cotingidæ (Chatterers.)

In the three volumes which have been published there have been described about twelve hundred and fifty species and subspecies, or about two-fifths of the total number of North and Middle American birds.

Acknowledgments are due for the loan of specimens used in the preparation of this volume to those individuals and public institutions mentioned in Parts I and II. The extent to which these outside sources have been drawn upon may be judged by the following statement of the number of specimens of Troglodytidæ (Wrens) alone examined in the working up of that family:

Collection of the U. S. National Museum.....	1,475
Collection of the Biological Survey.....	1,090
Collection of the American Museum of Natural History.....	407
Collection of A. E. and O. Bangs.....	297
Collection of William Brewster.....	243
Collection of the Academy of Natural Sciences of Philadelphia.....	176
Collection of the Museum of Comparative Zoology.....	74
Collection of Paul Bartsch.....	32
Collection of the Boston Society of Natural History (Lafresnaye types).....	14
Collection of William Palmer.....	10

Specimens of Troglodytidæ examined..... 3,818

Measurements in the present volume not made by the author were taken by Mr. J. H. Riley, of the Division of Birds.

ROBERT RIDGWAY.

SEPTEMBER 14, 1904.

TABLE OF CONTENTS.

	Page.
FAMILY MOTACILLIDÆ. The Wagtails and Pipits	1
Key to the Genera of Motacillidæ	2
Genus 1. <i>Motacilla</i> Linnaeus	2
Key to the Species of <i>Motacilla</i>	3
1. <i>Motacilla alba</i> Linnaeus	4
2. <i>Motacilla ocularis</i> Swinhoe	6
Genus 2. <i>Budytes</i> Cuvier	7
Key to the Subspecies of <i>Budytes flavus</i>	8
3. <i>Budytes flavus</i> <i>alascensis</i> , new subspecies ^a	8
Genus 3. <i>Anthus</i> Bechstein	10
Key to the Species of <i>Anthus</i>	11
4. <i>Anthus pensilvanicus</i> (Latham)	12
5. <i>Anthus cervinus</i> (Pallas)	15
6. <i>Anthus pratensis</i> (Linnaeus)	18
7. <i>Anthus spragueii</i> (Audubon)	20
8. <i>Anthus parvus</i> Lawrence	22
FAMILY HIRUNDINIDÆ. The Swallows	23
Key to the Genera of Hirundinidæ	26
Genus 1. <i>Progne</i> Boie	28
Key to the Species and Subspecies of <i>Progne</i>	29
1. <i>Progne subis subis</i> (Linnaeus)	31
2. <i>Progne subis hesperia</i> Brewster	35
3. <i>Progne cryptoleuca</i> Baird	37
4. <i>Progne dominicensis</i> (Gmelin)	38
5. <i>Progne sinalœ</i> Nelson	40
6. <i>Progne chalybea chalybea</i> (Gmelin)	40
7. <i>Progne modesta</i> (Nébox)	43
Genus 2. <i>Petrochelidon</i> Cabanis	44
Key to the Species and Subspecies of <i>Petrochelidon</i>	46
8. <i>Petrochelidon lunifrons lunifrons</i> (Say)	47
9. <i>Petrochelidon lunifrons tachina</i> Oberholser	50
10. <i>Petrochelidon lunifrons melanogaster</i> (Swainson)	51
11. <i>Petrochelidon fulva fulva</i> (Vieillot)	53
12. <i>Petrochelidon fulva pœciloma</i> (Gosse)	54
13. <i>Petrochelidon fulva pallida</i> Nelson	56
Genus 3. <i>Stelgidopteryx</i> Baird	56
Key to the Species and Subspecies of <i>Stelgidopteryx</i>	57
14. <i>Stelgidopteryx serripennis</i> (Audubon)	58
15. <i>Stelgidopteryx ridgwayi</i> Nelson	61
16. <i>Stelgidopteryx salvini</i> Ridgway	62
17. <i>Stelgidopteryx ruficollis uropygialis</i> (Lawrence)	63

^a See Addenda, p. 737.

	Page.
Genus 4. <i>Notiochelidon</i> Baird	65
18. <i>Notiochelidon pileata</i> (Gould)	66
Genus 5. <i>Neochelidon</i> Sclater	67
19. <i>Neochelidon tibialis</i> (Cassin)	67
Genus 6. <i>Pygochelidon</i> Baird	68
Key to the Species (or Subspecies ?) of <i>Pygochelidon</i>	69
20. <i>Pygochelidon cyanoleuca</i> (Vieillot)	69
Genus 7. <i>Riparia</i> Forster	72
21. <i>Riparia riparia</i> (Linnæus)	73
Genus 8. <i>Hirundo</i> Linnæus	76
Key to the Species of <i>Hirundo</i>	78
22. <i>Hirundo rustica</i> Linnæus	79
23. <i>Hirundo erythrogastra</i> Boddaert	80
24. <i>Hirundo tytleri</i> Jerdon	84
Genus 9. <i>Iridoprocne</i> Coues	85
Key to the Species <i>Iridoprocne</i>	86
25. <i>Iridoprocne bicolor</i> (Vieillot)	87
26. <i>Iridoprocne albilineata</i> (Lawrence)	90
Genus 10. <i>Tachycineta</i> Cabanis	92
27. <i>Tachycineta thalassina thalassina</i> (Swainson)	93
28. <i>Tachycineta thalassina lepida</i> (Mearns)	95
29. <i>Tachycineta thalassina brachyptera</i> Brewster	98
Genus 11. <i>Callichelidon</i> Baird	98
30. <i>Callichelidon cyaneoviridis</i> (Bryant)	99
Genus 12. <i>Lamprochelidon</i> , new genus ^a	100
Key to the Species of <i>Lamprochelidon</i>	101
31. <i>Lamprochelidon euchrysea</i> (Gosse)	101
32. <i>Lamprochelidon sclateri</i> (Cory)	102
FAMILY AMPELIDÆ. The Waxwings	103
Genus 1. <i>Ampelis</i> Linnæus	104
Key to the Species of <i>Ampelis</i>	105
1. <i>Ampelis garrulus</i> Linnæus	105
2. <i>Ampelis cedrorum</i> (Vieillot)	109
FAMILY PTILOGONATIDÆ. The Silky Flycatchers	113
Key to the Genera of Ptilogonatidæ	114
Genus 1. <i>Ptilogonys</i> Swainson	114
Key to the Species of <i>Ptilogonys</i>	115
1. <i>Ptilogonys cinereus cinereus</i> Swainson	115
2. <i>Ptilogonys cinereus molybdophanes</i> Ridgway	117
3. <i>Ptilogonys caudatus</i> Cabanis	118
Genus 2. <i>Phainopepla</i> Sclater	120
4. <i>Phainopepla nitens</i> (Swainson)	120
Genus 3. <i>Phainoptila</i> Salvin	123
5. <i>Phainoptila melanoxantha</i> Salvin	124
FAMILY DULIDÆ. The Palm Chats	125
Genus 1. <i>Dulus</i> Vieillot	125
Key to the Species of <i>Dulus</i>	126
1. <i>Dulus dominicus</i> (Linnæus)	126
2. <i>Dulus nuchalis</i> Swainson	127
FAMILY VIREONIDÆ. The Vireos	128
Key to the Genera of Vireonidæ	129
Genus 1. <i>Vireosylva</i> Bonaparte	130

^a See Addenda, p. 740.

TABLE OF CONTENTS.

IX

	Page.
Key to the Species and Subspecies of <i>Vireosylva</i>	131
1. <i>Vireosylva magister magister</i> Lawrence	134
2. <i>Vireosylva magister cinerea</i> (Ridgway)	136
3. <i>Vireosylva caymanensis</i> (Cory)	136
4. <i>Vireosylva calidris calidris</i> (Linnæus)	137
5. <i>Vireosylva calidris barbadensis</i> Ridgway	140
6. <i>Vireosylva calidris barbatula</i> (Cabanis)	141
7. <i>Vireosylva calidris grandior</i> (Ridgway)	143
8. <i>Vireosylva calidris canescens</i> (Cory)	143
9. <i>Vireosylva flavoviridis flavoviridis</i> Cassin	144
10. <i>Vireosylva flavoviridis forreri</i> (Madarász)	146
11. <i>Vireosylva insulanus</i> (Bangs)	147
12. <i>Vireosylva olivacea</i> (Linnæus)	147
13. <i>Vireosylva philadelphia</i> Cassin	151
14. <i>Vireosylva gilva gilva</i> (Vieillot)	153
15. <i>Vireosylva gilva swainsonii</i> (Baird)	155
16. <i>Vireosylva gilva brewsteri</i> , new subspecies ^a	158
17. <i>Vireosylva amauronota amauronota</i> (Salvin and Godman)	158
18. <i>Vireosylva amauronota strenua</i> (Nelson)	159
19. <i>Vireosylva josephæ costaricensis</i> , new subspecies ^a	159
20. <i>Vireosylva josephæ chiriquensis</i> Bangs	161
Genus 2. <i>Lanivireo</i> Baird.....	161
Key to the Species and Subspecies of <i>Lanivireo</i>	162
21. <i>Lanivireo flavifrons</i> (Vieillot)	163
22. <i>Lanivireo propinquus</i> (Baird)	166
23. <i>Lanivireo solitarius solitarius</i> (Wilson)	167
24. <i>Lanivireo solitarius alticola</i> (Brewster)	169
25. <i>Lanivireo solitarius plumbeus</i> (Coues)	170
26. <i>Lanivireo solitarius cassinii</i> (Xantus)	172
27. <i>Lanivireo solitarius lucasanus</i> (Brewster)	175
Genus 3. <i>Vireo</i> Vieillot.....	176
Key to the Species and Subspecies of <i>Vireo</i>	177
28. <i>Vireo bairdi</i> Ridgway.....	180
29. <i>Vireo atricapillus</i> Woodhouse	181
30. <i>Vireo noveboracensis noveboracensis</i> (Gmelin)	183
31. <i>Vireo noveboracensis bermudianus</i> (Bangs and Bradlee)	185
32. <i>Vireo noveboracensis maynardi</i> Brewster.....	186
33. <i>Vireo noveboracensis micrus</i> Nelson	186
34. <i>Vireo perquisitor</i> Nelson	187
35. <i>Vireo gundlachii</i> Lembeye	188
36. <i>Vireo crassirostris crassirostris</i> Bryant	189
37. <i>Vireo crassirostris flavescens</i> Ridgway.....	191
38. <i>Vireo crassirostris allenii</i> Cory.....	192
39. <i>Vireo crassirostris approximans</i> Ridgway.....	192
40. <i>Vireo ochraceus</i> Salvin.....	193
41. <i>Vireo pallens</i> Salvin	194
42. <i>Vireo huttoni huttoni</i> Cassin	195
43. <i>Vireo huttoni obscurus</i> Anthony.....	196
44. <i>Vireo huttoni mexicanus</i> , new subspecies ^b	196
45. <i>Vireo huttoni stephensi</i> Brewster.....	197
46. <i>Vireo huttoni cognatus</i> , new subspecies ^c	199

^aSee Addenda, p. 741.

^bSee Addenda, p. 742.

^cSee Addenda, p. 743.

	Page.
47. <i>Vireo huttoni mailliardorum</i> (Grinnell).....	743
48. <i>Vireo carmioli</i> Baird.....	199
49. <i>Vireo modestus</i> Sclater.....	200
50. <i>Vireo hypochryseus hypochryseus</i> Sclater.....	201
51. <i>Vireo hypochryseus sordidus</i> Nelson.....	202
52. <i>Vireo viciniior</i> Coues.....	202
53. <i>Vireo nanus</i> Nelson.....	204
54. <i>Vireo bellii bellii</i> Audubon.....	204
55. <i>Vireo bellii medius</i> Oberholser.....	206
56. <i>Vireo bellii arizonæ</i> , new subspecies ^a	207
57. <i>Vireo bellii pusillus</i> (Coues).....	208
58. <i>Vireo latimeri</i> Baird.....	210
Genus 4. <i>Neochloe</i> Sclater.....	211
59. <i>Neochloe brevipennis</i> Sclater.....	212
Genus 5. <i>Laletes</i> Sclater.....	212
60. <i>Laletes osburni</i> Sclater.....	213
Genus 6. <i>Pachysylvia</i> Bonaparte.....	214
Key to the Species and Subspecies of <i>Pachysylvia</i>	215
61. <i>Pachysylvia decurtata</i> (Bonaparte).....	216
62. <i>Pachysylvia ochraceiceps ochraceiceps</i> (Sclater).....	218
63. <i>Pachysylvia ochraceiceps pallidipectus</i> Ridgway.....	219
64. <i>Pachysylvia aurantiifrons aurantiifrons</i> (Lawrence).....	220
65. <i>Pachysylvia viridiflava</i> (Lawrence).....	221
Genus 7. <i>Vireolanius</i> Du Bus.....	221
Key to the Species and Subspecies of <i>Vireolanius</i>	222
66. <i>Vireolanius pulchellus pulchellus</i> Sclater and Salvin.....	223
67. <i>Vireolanius pulchellus verticalis</i> Ridgway.....	224
68. <i>Vireolanius pulchellus viridiceps</i> , new subspecies ^b	224
69. <i>Vireolanius melitophrys melitophrys</i> Bonaparte.....	225
70. <i>Vireolanius melitophrys goldmani</i> Nelson.....	744
Genus 8. <i>Cyclarhis</i> Swanson.....	226
Key to the Species and Subspecies of <i>Cyclarhis</i>	227
71. <i>Cyclarhis flaviventris flaviventris</i> Lafresnaye.....	228
72. <i>Cyclarhis flaviventris yucatanensis</i> Ridgway.....	229
73. <i>Cyclarhis insularis</i> Ridgway.....	230
74. <i>Cyclarhis coibæ</i> Hartert.....	745
75. <i>Cyclarhis flavipectus subflavescens</i> (Lawrence).....	230
FAMILY LANIIDÆ. The Shrikes.....	232
Genus 1. <i>Lanius</i> Linnaeus.....	234
Key to the Species and Subspecies of <i>Lanius</i>	235
1. <i>Lanius borealis</i> Vieillot.....	237
2. <i>Lanius ludovicianus ludovicianus</i> Linnaeus.....	241
3. <i>Lanius ludovicianus migrans</i> Palmer.....	243
4. <i>Lanius ludovicianus excubitorides</i> (Swainson).....	246
5. <i>Lanius ludovicianus mexicanus</i> (Brehm).....	248
6. <i>Lanius ludovicianus gambeli</i> Ridgway.....	249
7. <i>Lanius ludovicianus anthonyi</i> Mearns.....	251
8. <i>Lanius ludovicianus mearnsi</i> , new subspecies ^c	252
FAMILY CORVIDÆ. The Crows and Jays.....	252
Key to the Genera of Corvidæ.....	254
Genus 1. <i>Corvus</i> Linnaeus.....	256

^a See Addenda, p. 743.^b See Addenda, p. 744.^c See Addenda, p. 745.

TABLE OF CONTENTS.

XI

	Page.
Key to the Species and Subspecies of <i>Corvus</i>	257
1. <i>Corvus corax principalis</i> Ridgway	259
2. <i>Corvus corax sinuatus</i> (Wagler)	262
3. <i>Corvus corax clarionensis</i> Rothschild and Hartert	264
4. <i>Corvus cryptoleucus</i> Couch	265
5. <i>Corvus americanus americanus</i> Audubon	267
6. <i>Corvus americanus pascuus</i> Coues	269
7. <i>Corvus americanus hesperis</i> Ridgway	270
8. <i>Corvus americanus caurinus</i> (Baird)	272
9. <i>Corvus ossifragus</i> Wilson	273
10. <i>Corvus mexicanus</i> Gmelin	275
11. <i>Corvus palmarum</i> Württemberg	276
12. <i>Corvus minutus</i> Gundlach	276
13. <i>Corvus jamaicensis</i> Gmelin	277
14. <i>Corvus nasicus</i> Temminck	278
15. <i>Corvus leucognaphalus leucognaphalus</i> Daudin	278
16. <i>Corvus leucognaphalus erythrophthalmus</i> (Württemberg)	279
Genus 2. <i>Nucifraga</i> Brisson	280
Key to the Species of <i>Nucifraga</i>	280
17. <i>Nucifraga columbiana</i> (Wilson)	281
Genus 3. <i>Cyanocephalus</i> Bonaparte	283
18. <i>Cyanocephalus cyanocephalus</i> (Maximilian)	284
Genus 4. <i>Pica</i> Brisson	286
Key to the Species of <i>Pica</i>	287
19. <i>Pica pica hudsonia</i> (Sabine)	287
20. <i>Pica nuttalli</i> Audubon	291
Genus 5. <i>Calocitta</i> Gray	292
Key to the Species and Subspecies of <i>Calocitta</i>	293
21. <i>Calocitta collieri</i> (Vigors)	294
22. <i>Calocitta formosa formosa</i> (Swainson)	295
23. <i>Calocitta formosa azurea</i> Nelson	296
Genus 6. <i>Psilorhinus</i> Rüppell	298
Key to the Species and Subspecies of <i>Psilorhinus</i>	298
24. <i>Psilorhinus morio morio</i> (Wagler)	299
25. <i>Psilorhinus morio fuliginosus</i> (Lesson)	300
26. <i>Psilorhinus mexicanus mexicanus</i> Rüppell	301
27. <i>Psilorhinus mexicanus cyanogenys</i> (Sharpe)	301
28. <i>Psilorhinus mexicanus vociferus</i> (Cabot)	303
Genus 7. <i>Cyanocorax</i> Boie	303
29. <i>Cyanocorax affinis zeledoni</i> Ridgway	304
Genus 8. <i>Xanthoura</i> Bonaparte	305
Key to the Species and Subspecies of <i>Xanthoura</i>	305
30. <i>Xanthoura luxuosa luxuosa</i> (Lesson)	306
31. <i>Xanthoura luxuosa glaucescens</i> Ridgway	308
32. <i>Xanthoura luxuosa vivida</i> Ridgway	309
33. <i>Xanthoura luxuosa guatemalensis</i> (Bonaparte)	310
34. <i>Xanthoura luxuosa speciosa</i> Nelson	311
Genus 9. <i>Cissilopha</i> Bonaparte	312
Key to Species and Subspecies of <i>Cissilopha</i>	313
35. <i>Cissilopha san-blasiana san-blasiana</i> (Vigors)	313
36. <i>Cissilopha san-blasiana pulchra</i> Nelson	314
37. <i>Cissilopha yucatanica</i> (Dubois)	315
38. <i>Cissilopha beecheyi</i> (Vigors)	316
39. <i>Cissilopha melanocyanea</i> (Hartlaub)	317

	Page.
Genus 10. <i>Cyanolyca</i> Cabanis	318
Key to the Species and Subspecies of <i>Cyanolyca</i> ^a	319
40. <i>Cyanolyca argentigula</i> Lawrence	319
41. <i>Cyanolyca mirabilis</i> Nelson	748
42. <i>Cyanolyca nana</i> (Du Bus)	320
43. <i>Cyanolyca pumilo</i> (Strickland)	321
44. <i>Cyanolyca mitrata</i> Ridgway	322
45. <i>Cyanolyca cucullata</i> Ridgway	323
Genus 11. <i>Aphelocoma</i> Cabanis	323
Key to the Species and Subspecies of <i>Aphelocoma</i> ^b	324
46. <i>Aphelocoma cyanea</i> (Vieillot)	326
47. <i>Aphelocoma californica californica</i> (Vigors)	327
48. <i>Aphelocoma californica obscura</i> Anthony	330
49. <i>Aphelocoma californica hypoleuca</i> Ridgway	331
50. <i>Aphelocoma insularis</i> Henshaw	331
51. <i>Aphelocoma woodhouseii</i> (Baird)	333
52. <i>Aphelocoma cyanotis</i> Ridgway	335
53. <i>Aphelocoma sumichrasti</i> Ridgway	336
54. <i>Aphelocoma texana</i> Ridgway	337
55. <i>Aphelocoma grisea</i> Nelson	337
56. <i>Aphelocoma sieberii sieberii</i> (Wagler)	338
57. <i>Aphelocoma sieberii colimæ</i> Nelson	339
58. <i>Aphelocoma sieberii potosina</i> Nelson	340
59. <i>Aphelocoma sieberii arizonæ</i> (Ridgway)	340
60. <i>Aphelocoma sieberii wollweberi</i> (Kaup)	341
61. <i>Aphelocoma sieberii couchi</i> (Baird)	342
62. (?) <i>Aphelocoma ultramarina</i> (Bonaparte)	343
63. <i>Aphelocoma unicolor unicolor</i> (Du Bus)	344
64. <i>Aphelocoma unicolor celestis</i> , new subspecies	345
65. <i>Aphelocoma guerrerensis</i> Nelson	749
Genus 12. <i>Cyanocitta</i> Strickland	345
Key to the Species and Subspecies of <i>Cyanocitta</i>	346
66. <i>Cyanocitta cristata cristata</i> (Linnaeus)	347
67. <i>Cyanocitta cristata florincola</i> Coues	350
68. <i>Cyanocitta stelleri stelleri</i> (Gmelin)	351
69. <i>Cyanocitta stelleri carlottæ</i> Osgood	354
70. <i>Cyanocitta stelleri carbonacea</i> Grinnell	354
71. <i>Cyanocitta stelleri frontalis</i> Ridgway	355
72. <i>Cyanocitta stelleri annectens</i> Baird	357
73. <i>Cyanocitta stelleri diademata</i> (Bonaparte)	358
74. <i>Cyanocitta stelleri azteca</i> Ridgway	361
75. <i>Cyanocitta stelleri coronata</i> (Swainson)	362
Genus 13. <i>Perisoreus</i> Bonaparte	364
Key to the Species and Subspecies of <i>Perisoreus</i>	365
76. <i>Perisoreus canadensis canadensis</i> (Linnaeus)	366
77. <i>Perisoreus canadensis nigricapillus</i> Ridgway	368
78. <i>Perisoreus canadensis fumifrons</i> Ridgway	369
79. <i>Perisoreus canadensis capitalis</i> Baird	370
80. <i>Perisoreus obscurus obscurus</i> (Ridgway)	372
81. <i>Perisoreus obscurus griseus</i> Ridgway	373
FAMILY PARIDÆ. The Titmice	375

^aSee Addenda, pp. 747, 748.^bSee Addenda, p. 749.

	Page.
Key to the Genera of Paridæ	379
Genus 1. <i>Bæolophus</i> Cabanis	380
Key to the Species and Subspecies of <i>Bæolophus</i>	380
1. <i>Bæolophus</i> <i>bicolor</i> (Linnæus)	381
2. <i>Bæolophus</i> <i>atricristatus atricristatus</i> (Cassin)	384
3. <i>Bæolophus</i> <i>atricristatus sennetti</i> , new subspecies	386
4. <i>Bæolophus</i> <i>inornatus inornatus</i> (Gambel)	387
5. <i>Bæolophus</i> <i>inornatus restrictus</i> , new subspecies ^a	389
6. <i>Bæolophus</i> <i>inornatus murinus</i> , new subspecies ^a	389
7. <i>Bæolophus</i> <i>inornatus griseus</i> (Ridgway)	390
8. <i>Bæolophus</i> <i>inornatus cineraceus</i> (Ridgway)	391
9. <i>Bæolophus</i> <i>wollweberi wollweberi</i> (Bonaparte)	392
10. <i>Bæolophus</i> <i>wollweberi annexus</i> (Cassin)	393
Genus 2. <i>Penthestes</i> Reichenbach	394
Key to the Species and Subspecies of <i>Penthestes</i>	395
11. <i>Penthestes</i> <i>atricapillus atricapillus</i> (Linnæus)	397
12. <i>Penthestes</i> <i>atricapillus septentrionalis</i> (Harris)	399
13. <i>Penthestes</i> <i>atricapillus turneri</i> Ridgway	402
14. <i>Penthestes</i> <i>atricapillus occidentalis</i> (Baird)	402
15. <i>Penthestes</i> <i>carolinensis carolinensis</i> (Audubon)	403
16. <i>Penthestes</i> <i>carolinensis agilis</i> (Sennett)	406
17. <i>Penthestes</i> <i>carolinensis impiger</i> (Bangs)	406
18. <i>Penthestes</i> <i>sclateri</i> (Kleinschmidt)	407
19. <i>Penthestes</i> <i>gambeli</i> (Ridgway)	408
20. <i>Penthestes</i> <i>cinctus alascensis</i> (Prazák)	411
21. <i>Penthestes</i> <i>hudsonicus hudsonicus</i> (Forster)	412
22. <i>Penthestes</i> <i>hudsonicus columbianus</i> (Rhoads)	414
23. <i>Penthestes</i> <i>hudsonicus littoralis</i> (Bryant)	415
24. <i>Penthestes</i> <i>rufescens rufescens</i> (Townsend)	416
25. <i>Penthestes</i> <i>rufescens neglectus</i> (Ridgway)	418
26. <i>Penthestes</i> <i>rufescens barlowi</i> (Grinnell)	418
Genus 3. <i>Auriparus</i> Baird	419
27. <i>Auriparus</i> <i>flaviceps flaviceps</i> (Sundevall)	420
28. <i>Auriparus</i> <i>flaviceps lamprocephalus</i> Oberholser	422
Genus 4. <i>Psaltriparus</i> Bonaparte	423
Key to the Species and Subspecies of <i>Psaltriparus</i>	425
29. <i>Psaltriparus</i> <i>melanotis</i> (Hartlaub)	426
30. <i>Psaltriparus</i> <i>melanotis iulus</i> Jouy	428
31. <i>Psaltriparus</i> <i>melanotis lloydi</i> (Sennett)	429
32. <i>Psaltriparus</i> <i>plumbeus</i> (Baird)	430
33. <i>Psaltriparus</i> <i>minimus minimus</i> (Townsend)	432
34. <i>Psaltriparus</i> <i>minimus saturatus</i> , new subspecies ^b	434
35. <i>Psaltriparus</i> <i>minimus californicus</i> Ridgway	435
36. <i>Psaltriparus</i> <i>grindæ</i> Belding	436
FAMILY SITTIDÆ. The Nuthatches	436
Genus <i>Sitta</i> Linnæus	439
Key to the Species and Subspecies of <i>Sitta</i>	440
1. <i>Sitta</i> <i>carolinensis carolinensis</i> Latham	441
2. <i>Sitta</i> <i>carolinensis atkinsi</i> Scott	444
3. <i>Sitta</i> <i>carolinensis aculeata</i> (Cassin)	444
4. <i>Sitta</i> <i>carolinensis lagunæ</i> Brewster	446

^a See Addenda, p. 751.^b See Addenda, p. 752.

	Page.
5. <i>Sitta carolinensis nelsoni</i> Mearns	447
6. <i>Sitta carolinensis mexicana</i> Nelson and Palmer	448
7. <i>Sitta canadensis</i> Linnæus	450
8. <i>Sitta pusilla</i> Latham	453
9. <i>Sitta pygmæa pygmæa</i> Vigors	456
10. <i>Sitta pygmæa leuconucha</i> Anthony	459
FAMILY CERTHIIDÆ. The Creepers	459
Genus <i>Certhia</i> Linnæus	462
Key to the American Subspecies of <i>Certhia familiaris</i>	463
1. <i>Certhia familiaris americana</i> (Bonaparte)	464
2. <i>Certhia familiaris montana</i> Ridgway	467
3. <i>Certhia familiaris zelotes</i> Osgood	468
4. <i>Certhia familiaris occidentalis</i> Ridgway	470
5. <i>Certhia familiaris alticola</i> Miller	471
6. <i>Certhia familiaris albescens</i> (Berlepsch)	472
FAMILY TROGLODYTIDÆ. The Wrens	473
Key to the Genera of Troglodytidæ	476
Genus 1. <i>Cistothorus</i> Cabanis	480
Key to the Species and Subspecies of <i>Cistothorus</i>	481
1. <i>Cistothorus stellaris</i> (Lichtenstein)	482
2. <i>Cistothorus polyglottus elegans</i> (Sclater and Salvin)	484
3. <i>Cistothorus polyglottus lucidus</i> Ridgway	486
Genus 2. <i>Telmatodytes</i> Cabanis	486
Key to the Subspecies of <i>Telmatodytes</i>	488
4. <i>Telmatodytes palustris palustris</i> (Wilson)	489
5. <i>Telmatodytes palustris iliacus</i> Ridgway	492
6. <i>Telmatodytes palustris plesius</i> Oberholser	494
7. <i>Telmatodytes palustris paludicola</i> (Baird)	496
8. <i>Telmatodytes palustris marianæ</i> (Scott)	497
9. <i>Telmatodytes palustris thryophilus</i> Oberholser	498
10. <i>Telmatodytes palustris griseus</i> (Brewster)	499
Genus 3. <i>Heleodytes</i> Cabanis	500
Key to the Species and Subspecies of <i>Heleodytes</i>	501
11. <i>Heleodytes albobrunneus</i> Lawrence	503
12. <i>Heleodytes chiapensis</i> (Salvin and Godman)	504
13. <i>Heleodytes capistratus capistratus</i> (Lesson)	504
14. <i>Heleodytes capistratus nigricaudatus</i> Nelson	506
15. <i>Heleodytes rufinucha</i> (Lafresnaye)	507
16. <i>Heleodytes humilis</i> (Sclater)	508
17. <i>Heleodytes zonatus zonatus</i> (Lesson)	510
18. <i>Heleodytes zonatus costaricensis</i> (Berlepsch)	512
19. <i>Heleodytes zonatus restrictus</i> Nelson	512
20. <i>Heleodytes megalopterus</i> (Lafresnaye)	513
21. <i>Heleodytes nelsoni</i> Ridgway	514
22. <i>Heleodytes guttatus</i> (Gould)	516
23. <i>Heleodytes brunneicapillus brunneicapillus</i> (Lafresnaye)	517
24. <i>Heleodytes brunneicapillus bryanti</i> Anthony	519
25. <i>Heleodytes brunneicapillus affinis</i> (Xantus)	520
26. <i>Heleodytes brunneicapillus obscurus</i> Nelson	521
27. <i>Heleodytes brunneicapillus couesi</i> (Sharpe)	522
28. <i>Heleodytes jocosus</i> (Sclater)	524
29. <i>Heleodytes gularis</i> (Sclater)	526
Genus 4. <i>Pheugopedius</i> Cabanis	527

TABLE OF CONTENTS.

XV

Page.

Key to the Species and Subspecies of <i>Phlegopedius</i>	528
30. <i>Phlegopedius atrogularis</i> (Salvin)	530
31. <i>Phlegopedius fasciato-ventris albigularis</i> (Sclater)	531
32. <i>Phlegopedius fasciato-ventris melanogaster</i> (Sharpe)	532
33. <i>Phlegopedius hyperythrus</i> (Salvin and Godman).....	533
34. <i>Phlegopedius maculipectus maculipectus</i> (Lafresnaye)	534
35. <i>Phlegopedius maculipectus umbrinus</i> Ridgway	535
36. <i>Phlegopedius maculipectus cano-brunneus</i> Ridgway	536
37. <i>Phlegopedius felix felix</i> (Sclater).....	536
38. <i>Phlegopedius felix grandis</i> Nelson.....	537
39. <i>Phlegopedius felix pallidus</i> (Nelson)	538
40. <i>Phlegopedius felix lawrencii</i> (Ridgway)	538
41. <i>Phlegopedius felix magdalene</i> (Nelson)	539
Genus 5. <i>Thryothorus</i> Vieillot	539
Key to the Subspecies of <i>Thryothorus ludovicianus</i>	540
42. <i>Thryothorus ludovicianus ludovicianus</i> (Latham).....	541
43. <i>Thryothorus ludovicianus miamensis</i> Ridgway'.....	545
44. <i>Thryothorus ludovicianus berlandieri</i> (Baird)	546
45. <i>Thryothorus ludovicianus lomitisensis</i> Sennett	547
Genus 6. <i>Thryomanes</i> Sclater	548
Key to the Species and Subspecies of <i>Thryomanes</i>	549
46. <i>Thryomanes albinucha</i> (Cabot).....	551
47. <i>Thryomanes bewickii bewickii</i> (Audubon).....	552
48. <i>Thryomanes bewickii cryptus</i> Oberholser	555
49. <i>Thryomanes bewickii eremophilus</i> Oberholser.....	557
50. <i>Thryomanes bewickii murinus</i> (Hartlaub)	559
51. <i>Thryomanes bewickii bairdi</i> (Salvin and Godman)	559
52. <i>Thryomanes bewickii percnus</i> Oberholser.....	560
53. <i>Thryomanes bewickii charienturus</i> Oberholser.....	561
54. <i>Thryomanes bewickii cerroensis</i> (Anthony)	562
55. <i>Thryomanes bewickii nesophilus</i> Oberholser	562
56. <i>Thryomanes bewickii leucophrys</i> (Anthony)	563
57. <i>Thryomanes bewickii drymoeus</i> Oberholser.....	563
58. <i>Thryomanes bewickii spilurus</i> (Vigors)	565
59. <i>Thryomanes bewickii calophonius</i> Oberholser.....	566
60. <i>Thryomanes brevicaudus</i> Ridgway.....	567
61. <i>Thryomanes insularis</i> (Lawrence)	568
Genus 7. <i>Troglodytes</i> Vieillot.....	569
Key to the Species and Subspecies of <i>Troglodytes</i>	570
62. <i>Troglodytes tanneri</i> Townsend	573
63. <i>Troglodytes beani</i> Ridgway	573
64. <i>Troglodytes peninsularis</i> Nelson	574
65. <i>Troglodytes musculus inquietus</i> (Baird).....	575
66. <i>Troglodytes musculus intermedius</i> (Cabanis)	576
67. <i>Troglodytes musculus hypædon</i> (Sclater)	578
68. <i>Troglodytes ædon ædon</i> Vieillot	579
69. <i>Troglodytes ædon parkmanii</i> (Audubon)	582
70. <i>Troglodytes brunneicollis brunneicollis</i> Sclater	586
71. <i>Troglodytes brunneicollis nitidus</i> Nelson	588
72. <i>Troglodytes brunneicollis cahooni</i> (Brewster)	588
73. <i>Troglodytes rufociliatus</i> Sharpe	588
74. <i>Troglodytes ochraceus</i> Ridgway	590
75. <i>Troglodytes mesoleucus</i> (Sclater)	591

	Page.
76. <i>Troglodytes musicus</i> (Lawrence)	591
77. <i>Troglodytes grenadensis</i> (Lawrence)	592
78. <i>Troglodytes martinicensis</i> (Sclater)	593
79. <i>Troglodytes rufescens</i> (Lawrence)	594
80. <i>Troglodytes guadeloupensis</i> (Cory)	595
Genus 8. <i>Olbiorchilus</i> Oberholser	595
Key to the Species and Subspecies of <i>Olbiorchilus</i>	596
81. <i>Olbiorchilus hiemalis hiemalis</i> (Vieillot)	597
82. <i>Olbiorchilus hiemalis pacificus</i> (Baird)	600
83. <i>Olbiorchilus hiemalis helleri</i> (Osgood)	602
84. <i>Olbiorchilus alascensis</i> (Baird)	602
85. <i>Olbiorchilus meligerus</i> Oberholser	604
Genus 9. <i>Thryorchilus</i> Oberholser	605
86. <i>Thryorchilus browni</i> (Bangs)	606
Genus 10. <i>Henicorhina</i> Sclater and Salvin	607
Key to the Species and Subspecies of <i>Henicorhina</i>	608
87. <i>Henicorhina prosthaleuca prosthaleuca</i> (Sclater)	610
88. <i>Henicorhina prosthaleuca pittieri</i> (Cherrie)	612
89. <i>Henicorhina leucophrys collina</i> (Bangs)	613
90. <i>Henicorhina leucophrys castanea</i> Ridgway	615
91. <i>Henicorhina leucophrys capitalis</i> Nelson	615
92. <i>Henicorhina leucophrys mexicana</i> Nelson	616
93. <i>Henicorhina leucophrys festiva</i> Nelson	616
Genus 11. <i>Nannorchilus</i> Ridgway	617
Key to the Subspecies of <i>Nannorchilus leucogaster</i>	618
94. <i>Nannorchilus leucogaster leucogaster</i> (Gould)	618
95. <i>Nannorchilus leucogaster pacificus</i> (Nelson)	619
96. <i>Nannorchilus leucogaster musicus</i> (Nelson)	620
97. <i>Nannorchilus leucogaster brachyurus</i> (Lawrence)	620
Genus 12. <i>Thryophilus</i> Baird	620
Key to the Species and Subspecies of <i>Thryophilus</i>	622
98. <i>Thryophilus castaneus castaneus</i> (Lawrence)	624
99. <i>Thryophilus castaneus costaricensis</i> (Sharpe)	625
100. <i>Thryophilus nigricapillus schottii</i> (Baird)	626
101. <i>Thryophilus semibadius</i> (Salvin)	627
102. <i>Thryophilus thoracicus</i> (Salvin)	628
103. <i>Thryophilus pleurostictus pleurostictus</i> (Sclater)	629
104. <i>Thryophilus pleurostictus nisorius</i> (Cabanis)	631
105. <i>Thryophilus pleurostictus rarus</i> Ridgway	631
106. <i>Thryophilus rufalbus rufalbus</i> (Lafresnaye)	632
107. <i>Thryophilus rufalbus castanonotus</i> Ridgway	633
108. <i>Thryophilus sinaloa sinaloa</i> Baird	635
109. <i>Thryophilus sinaloa cinereus</i> Brewster	636
110. <i>Thryophilus sinaloa russeus</i> Nelson	637
111. <i>Thryophilus galbraithii galbraithii</i> (Lawrence)	637
112. <i>Thryophilus galbraithii conditus</i> Bangs	638
113. <i>Thryophilus modestus modestus</i> (Cabanis)	639
114. <i>Thryophilus modestus elutus</i> Bangs	640
115. <i>Thryophilus modestus pullus</i> Ridgway	641
116. <i>Thryophilus zeledoni</i> Ridgway	642
Genus 13. <i>Salpinctes</i> Cabanis	643

	Page
Key to the Species and Subspecies of <i>Salpinctes</i>	644
117. <i>Salpinctes obsoletus obsoletus</i> (Say)	645
118. <i>Salpinctes obsoletus notius</i> Ridgway	648
119. <i>Salpinctes obsoletus pulverius</i> Grinnell	649
120. <i>Salpinctes obsoletus exsul</i> Ridgway	650
121. <i>Salpinctes obsoletus guadeloupensis</i> Ridgway	650
122. <i>Salpinctes obsoletus neglectus</i> Nelson	651
123. <i>Salpinctes maculatus</i> Ridgway	651
124. <i>Salpinctes guttatus</i> Salvin and Godman	653
125. <i>Salpinctes fasciatus</i> Salvin and Godman	653
Genus 14. <i>Catherpes</i> Baird	653
Key to the Subspecies of <i>Catherpes mexicanus</i>	654
126. <i>Catherpes mexicanus mexicanus</i> (Swainson)	655
127. <i>Catherpes mexicanus albifrons</i> (Giraud)	657
128. <i>Catherpes mexicanus conspersus</i> Ridgway	658
129. <i>Catherpes mexicanus punctulatus</i> Ridgway	659
130. <i>Catherpes mexicanus polioptilus</i> Oberholser	660
Genus 15. <i>Hylorchilus</i> Nelson	663
131. <i>Hylorchilus sumichrasti</i> (Lawrence)	664
Genus 16. <i>Microcerculus</i> Sclater	665
Key to the Species of <i>Microcerculus</i>	666
132. <i>Microcerculus philomela</i> Salvin	667
133. <i>Microcerculus daulias</i> Ridgway	668
134. <i>Microcerculus lusciniæ</i> Salvin	669
Genus 17. <i>Leucolepis</i> Reichenbach	670
Key to the Species and Subspecies of <i>Leucolepis</i>	671
135. <i>Leucolepis lawrencii</i> (Sclater)	673
FAMILY CINCLIDÆ. The Dippers	675
Genus 1. <i>Cinclus</i> Borkhausen	676
Key to the American Species and Subspecies of <i>Cinclus</i>	676
1. <i>Cinclus mexicanus mexicanus</i> Swainson	677
2. <i>Cinclus mexicanus unicolor</i> (Bonaparte)	679
3. <i>Cinclus ardesiacus</i> Salvin	681
FAMILY CHAMÆIDÆ. The Wren-Tits	683
Genus 1. <i>Chamæa</i> Gambel	685
Key to the Subspecies of <i>Chamæa fasciata</i>	686
1. <i>Chamæa fasciata fasciata</i> Gambel	686
2. <i>Chamæa fasciata rufula</i> Ridgway	688
3. <i>Chamæa fasciata phæa</i> Osgood	689
4. <i>Chamæa fasciata henshawi</i> Ridgway	689
FAMILY SYLVIIDÆ. The Warblers	691
Key to the American Subfamilies of Sylviidæ ^a	694
Genus 1. <i>Acanthopneuste</i> Blasius	694
1. <i>Acanthopneuste borealis kennicotti</i> (Baird)	696
Genus 2. <i>Regulus</i> Cuvier	698
Key to the Species and Subspecies of <i>Regulus</i>	699
2. <i>Regulus satrapa satrapa</i> Lichenstein	700
3. <i>Regulus satrapa olivaceus</i> Baird	702
4. <i>Regulus cuvierii</i> Audubon	704

^a For Key to the Genera of Sylviidæ, accidentally omitted from its proper place, see Addenda, p. 754.

	Page.
5. <i>Regulus calendula calendula</i> (Linnæus)	705
6. <i>Regulus calendula grinnelli</i> Palmer	709
7. <i>Regulus calendula obscurus</i> Ridgway	710
Genus 3. <i>Polioptila</i> Sclater	710
Key to the Species and Subspecies of <i>Polioptila</i>	713
8. <i>Polioptila cærulea cærulea</i> (Linnæus)	716
9. <i>Polioptila cærulea obscura</i> Ridgway	720
10. <i>Polioptila cærulea mexicana</i> (Bonaparte)	722
11. <i>Polioptila cærulea cæsiogastra</i> Ridgway	723
12. <i>Polioptila nelsoni</i> Ridgway	724
13. <i>Polioptila albiloris</i> Sclater and Salvin	725
14. <i>Polioptila bairdi</i> Ridgway	726
15. <i>Polioptila bilineata</i> (Bonaparte)	726
16. <i>Polioptila superciliaris superciliaris</i> Lawrence	727
17. <i>Polioptila superciliaris magna</i> Ridgway	728
18. <i>Polioptila albiventris</i> Lawrence	729
19. <i>Polioptila nigriceps</i> Baird	729
20. <i>Polioptila plumbea</i> Baird	731
21. <i>Polioptila californica</i> Brewster	734
22. <i>Polioptila lembeyi</i> (Gundlach)	735
Addenda	737
Index	755
List of figures illustrating generic details	XIX

LIST OF FIGURES ILLUSTRATING GENERIC DETAILS.

Genus.	Plate.	Figure.	Page of text.
1. Motacilla Linnaeus.....	I	1	2
2. Budytes Cuvier.....	I	2	7
3. Anthus Bechstein.....	I	3, 4	10
4. Cinclus Borkhausen.....	I	5	675
5. Progne Bole.....	II	1	26
6. Petrochelidon Cabanis.....	II	2	44
7. Stelgidopteryx Baird.....	II	3	56
8. Neochelidon Sclater.....	II	4	67
9. Notiochelidon Baird.....	II	5	65
10. Pygochelidon Baird.....	II	6	68
11. Hirundo Linnaeus.....	III	1	76
12. Riparia Forster.....	III	2	72
13. Callichelidon Baird.....	III	3	98
14. Iridoprocne Coues.....	III	4	85
15. Tachycineta Cabanis.....	III	5	92
16. Lamprochelidon Ridgway.....	III	6	100
17. Ampelis Linnaeus.....	IV	1	104
18. Ptilogonys Swainson.....	IV	2, 3	114
19. Phainopepla Sclater.....	V	1	120
20. Phainoptila Salvin.....	V	2	123
21. Dulus Vieillot.....	V	3	125
22. Vireosylva Bonaparte.....	VI	1, 2	130
23. Lanivireo Baird.....	VI	6	161
24. Vireo Vieillot.....	VI	4, 5	176
25. Neochloe Sclater.....	VI	7	211
26. Pachysylvia Bonaparte.....	VI	3	214
27. Laetes Sclater.....	VII	1	212
28. Vireolanius Du Bus.....	VII	2	221
29. Cyclarhis Swainson.....	VII	3	226
30. Lanius Linnaeus.....	VIII	4	234
31. Corvus Linnaeus.....	VIII	5	256
32. Nucifraga Brisson.....	IX	6	280
33. Cyanocephalus Bonaparte.....	IX	7	283
34. Psilorhinus Rüppell.....	IX	8	298
35. Calocitta Gray.....	X	1	292
36. Cissilopha Bonaparte.....	XI	1	312
37. Cyanocorax Bole.....	XII	1	303
38. Cyanolyca Cabanis.....	XIII	1, 2	318
39. Perisoreus Bonaparte.....	XIII	3	364
40. Cyanocitta Strickland.....	XIV	4	345
41. Aphelocoma Cabanis.....	XIV	5	323
42. Xanthoura Bonaparte.....	XIV	6	305
43. Pica Brisson.....	XV	1	286
44. Chamaea Gambel.....	XV	2	685
45. Certhia Linnaeus.....	XV	3	462
46. Sitta Linnaeus.....	XV	4	439
47. Baeolophus Cabanis.....	XVI	1-4	380

List of figures illustrating generic details—Continued.

Genus.	Plate.	Figure.	Page of text.
48. Lophophanes Kaup ^a	XVI	5	379
49. Penthestes Reichenbach.....	XVI	6	391
50. Psaltriparus Bonaparte.....	XVI	7	423
51. Auriparus Baird.....	XVI	8	419
52. Cinnycerthia Lesson ^a	XVII	1	477
53. Hylorchilus Nelson.....	XVII	2	663
54. Catherpes Baird.....	XVII	3	658
55. Heleodytes Cabanis.....	XVII	4	500
56. Pheugopedius Cabanis.....	XVII	5	527
57. Salpinctes Cabanis.....	XVII	6	643
58. Thryothorus Vieillot.....	XVIII	1	539
59. Thryomanes Selater.....	XVIII	2	548
60. Troglodytes Vieillot.....	XVIII	3	569
61. Thryorchilus Oberholser.....	XVIII	4	605
62. Olbiorchilus Oberholser.....	XVIII	5	595
63. Thryophilus Baird.....	XVIII	6	620
64. Nannorchilus Ridgway.....	XVIII	7	617
65. Henicorhina Selater and Salvin.....	XVIII	8	607
66. Telmatodytes Cabanis.....	XIX	1	486
67. Cistothorus Cabanis.....	XIX	2	490
68. Microoerculus Selater.....	XIX	3	665
69. Leucolepis Reichenbach.....	XIX	4	670
70. Acanthopneuste Blasius.....	XIX	5	694
71. Regulus Cuvier.....	XIX	6, 7	696
72. Polioptila Selater.....	XIX	8	710

^a Extralimital genus.

THE BIRDS

OF

NORTH AND MIDDLE AMERICA.

By ROBERT RIDGWAY,
Curator, Division of Birds.

Part III.

Family MOTACILLIDÆ.

THE WAGTAILS AND PIPITS.

Terrestrial nine-primaried acutiplantar Oscines, with the tertials conspicuously elongated (often reaching nearly or quite to tip of longest primaries), the bill slender and notched, the tarsi long and slender, and the hind claw usually conspicuously elongated.

Bill slender-conoid, decidedly shorter than head, its depth at nostril equal to less than half the distance from nostril to tip of maxilla, its width at same point slightly greater; culmen shorter than middle toe without claw, slightly curved terminally, often depressed subbasally; maxillary tomium obviously, but not conspicuously, notched subterminally. Rictal bristles obvious, but only two conspicuously developed. Nostril exposed, longitudinally ovate or subcuneate, overhung by a broad membranous operculum. Wing rather long and pointed, but tip subtruncate, the four to five outermost primaries longest and subequal; outer webs of eighth, seventh, and sixth—rarely also the fifth—primaries slightly sinuated subterminally; shorter (innermost) primaries and secondaries emarginated at tips; innermost secondaries (tertials) conspicuously elongated, often nearly equally, sometimes exceeding, the longest primaries. Tail variable in relative length, but never conspicuously shorter than wing, usually nearly as long, sometimes longer, the tip even, slightly emarginate, double-emarginate, rounded, or double-rounded, the rectrices rather narrow, usually

tapering terminally, but never (except sometimes middle pair) pointed at tip. Tarsus slender, of variable relative length, but always much longer than bill, the acrotarsium usually more or less distinctly scutellate, sometimes fused except on lower portion; toes slender, the middle one distinctly longer than the lateral toes, of which the inner is sometimes slightly longer than the outer; hallux about equal in length to lateral toes or slightly longer, but stouter; outer toe with basal phalanx adherent to middle toe, but inner toe almost entirely free; claws slender, variable in relative length, that of the hallux (except in genus *Motacilla*) elongated and but slightly arched, equal to or exceeding the digit in length.

The Motacillidæ are birds of terrestrial habits, walking or running gracefully on the ground, instead of hopping; and feed upon insects. The wagtails are usually of pied (black, gray, and white) plumage, but sometimes partially bright yellow—always unstreaked. The pipits are of streaked plumage, with brownish or tawny tints prevailing, in which respect they present a remarkable resemblance to the larks (family Alaudidæ), as they do also in their habits and the character of their nests and eggs.

The family is most developed in the Eastern Hemisphere, to which the wagtails are restricted; America possessing, as peculiar species, only the pipits, represented by about eight species, belonging to two or three genera or subgenera.

KEY TO THE GENERA OF MOTACILLIDÆ.

- a. Plumage without streaks; tail longer (nearly equal to wing, sometimes longer); under parts plain white or yellow, with or without black on chest and throat. (*Motacilla*.)
- b. Claw of hallux shorter than the digit, strongly curved; under parts of body white, or if yellow the throat or a jugular crescent black; back gray or black; no yellow on head *Motacilla* (p. 2)
- bb. Claw of hallux longer than the digit, slightly curved; under parts yellow, without black on throat or chest; back olive-green, or if gray or black the whole head yellow *Budytes* (p. 7)
- aa. Plumage more or less streaked; tail shorter (decidedly shorter than wing); under parts neither pure white nor yellow (more or less brownish or buffy), more or less streaked, at least on sides, and without black on chest or throat, except in form of streaks. (*Anthus*.) *Anthus*^a (p. 10)

Genus MOTACILLA Linnæus.

Motacilla LINNÆUS, Syst. Nat., ed. 10, i, 1758, 184. (Type, by elimination, *M. alba* Linnæus.)

Calobates KAUP, Naturl. Syst., 1829, 33. (Type, *Motacilla melanope* Pallas.)

Pallenura BONAPARTE, Conspect. Av., i, 1850, 250. (Type, *Motacilla melanope* Pallas.)

Motacillidæ with the hind claw shorter than its digit and strongly curved; scutella of acrotarsium often indistinct, sometimes fused,

^aI must confess my inability to satisfactorily subdivide the genus *Anthus*.

except on upper portion; tail nearly as long as wing, sometimes longer;^a the rectrices narrow and tapering terminally, but with rounded tips; coloration black, gray, and white, or if with yellow on under parts the throat and chest partly black and the back and pileum gray.^b

Nidification.—Nest usually on ground, sometimes in holes among rocks or buildings, open above, bulky, composed of dried grasses, leaves, moss, etc., lined with wool, hair, or feathers; eggs with whitish, pale bluish, or brownish ground color, profusely speckled.

Range.—Palearctic, Indo-Malayan, and Ethiopian regions, most developed in eastern portion of the first named; two Palearctic species accidental or occasional in Greenland and Alaska, respectively (the latter once taken in Lower California).

KEY TO THE SPECIES OF MOTACILLA.

- a. Under tail-coverts white; upper tail-coverts black or dusky gray.
 - b. No black or dusky postocular streak, the sides of head entirely white; greater wing-coverts with only their tip white, forming a narrow band. (Europe, northern Africa, and greater part of Asia; accidental in Greenland.)
 - Motacilla alba* (p. 4)
 - bb. A black or dusky postocular streak; greater wing-coverts with outer webs white, or broadly edged with white, forming a large patch.
 - c. Black gray.
 - d. Exposed culmen 12-13 mm. (Eastern Asia; occasional in Alaska and accidental in Lower California.) *Motacilla ocularis* (p. 6)
 - dd. Exposed culmen 13-14 mm. (Eastern Asia.)
 - Motacilla lugens*, winter plumages (extralimital) ^c
 - cc. Back black *Motacilla lugens*, summer adults.
 - aa. Under tail-coverts yellow; upper tail-coverts olive-yellow or yellowish olive-green. (Europe and Asia.) *Motacilla melanope* (extralimital) ^d

^aMuch longer in *M. longicauda*.

^bThe species of *Motacilla* having yellow under parts may at once be distinguished from the somewhat similarly colored species of *Budytes* by their short and strongly arched, instead of long and slightly arched, hind claw; furthermore, all the species of *Budytes* either have the back olive-green or else, if black or gray, the whole head is yellow, and none of the species have black on the throat or chest.

^c*Motacilla lugens* "Pallas" Kittlitz, Kupf. Vög., 1832, 16, pl. 21, fig. 1; Stejneger, Bull. U. S. Nat. Mus., no. 29, 1885, 287 (synonymy, crit., descriptions, etc.); Sharpe, Cat. Birds Brit. Mus., x, 1885, 474, pl. 4, figs. 1-4.—*Motacilla leucoptera* "Brehm" Zander, Naumannia, iv, 1851, 14.—*Motacilla ocularis*, part, Swinhoe, Proc. Zool. Soc. Lond., 1863, 275.—*Motacilla amurensis* Seebohm, Ibis, 1878, 345, pl. 9.—*Motacilla kamtschatica* Stejneger, Naturen, 1882, 182; 1884, 5; Proc. U. S. Nat. Mus., v, 1883, 71.—*Motacilla blakistoni* Seebohm, Ibis, 1883, 91; 1884, 38.

This handsome species, which breeds in Kamchatka (including the Commander islands) very likely occasionally straggles to Alaska.

^d*Motacilla melanope* Pallas, Reis. Russ. Reichs, iii, 1776, 696; Gmelin, Syst. Nat., i, 1788, 997; Dresser, Birds Europe, iii, 1875, 251, pl. 128.

MOTACILLA ALBA Linnæus.

WHITE WAGTAIL.

Adult male in spring.—Forehead (broadly), sides of head and sides of neck (more narrowly) white; crown, occiput, hindneck, throat, and chest uniform deep black with a faint bluish gloss, that of chest with a sharply defined convex posterior outline; rest of under parts white, shading into ash gray on outer portion of sides and flanks; back, scapulars, and lesser wing-coverts plain slate gray, the rump similar but rather darker, especially posteriorly, where shading into the blackish slate or slate black of upper tail-coverts, the latter with outer webs broadly white exteriorly; tertials dull blackish or blackish slate, the two innermost with outer webs broadly edged with pale gray, this becoming whitish outwardly, especially on second, the third broadly edged with white; middle and greater coverts dull black or slate black broadly tipped with pale gray or grayish white, the latter edged with pale gray; primaries and secondaries dull slate-gray or dark mouse gray narrowly edged with pale gray or whitish; tail dull black or blackish slate, the two outermost rectrices (on each side) white with a stripe of blackish along edge of inner web; bill, legs, and feet black; iris brown.

Adult male in winter.—Similar to the spring plumage, but chin, throat, and upper chest white, the black restricted to a crescentic mark of black on lower chest and sides of throat; bill horn brownish, darker on culmen and tip.

Adult female in spring.—Similar to the adult male of corresponding season, but smaller and duller in color; white of forehead more or less obscured by grayish tips to feathers; crown, occiput, and hindneck dusky gray, or slate-gray, usually mixed with black along lateral margins.

Adult female in winter.—Similar to the summer plumage, but chin, throat, and upper chest white, or yellowish white; bill brownish.

Young in first winter.—Similar to the adult female of corresponding season, but gray of upper parts somewhat paler, especially that of the pileum, which is not darker than the back, the latter tinged with light brownish or buffy; white on sides of head, throat, etc., more or less tinged with yellow.

Young in first plumage.—Above, including whole pileum, plain brownish gray (deep buffy smoke gray), deepening into blackish gray on upper tail-coverts; lores paler gray; rest of sides of head, sides of neck, chin, throat, and upper chest dull white, tinged with buff, more or less clouded with grayish; under parts dull buffy white, becoming grayish on sides and flanks, the lower chest with a crescentic patch of dusky gray; rest of plumage essentially as in adult female, but duller, more tinged with buffy or yellowish; legs and feet brownish.

Adult male.—Length (skins), 179–196 (186.5); wing, 85–90 (87.8); tail, 84–90 (87.5); exposed culmen, 11–13 (12.3); tarsus, 23–26 (24); middle toe, 13–15 (14).^a

Adult female.—Length (skins), 168–170 (169); wing, 80–86 (83); tail, 76–82 (79); exposed culmen, 12–13 (12.5); tarsus, 23; middle toe, 12–14 (13).^b

Palearctic Region, breeding from British Islands eastward to the Yenesei Valley in Siberia, and from the Arctic coast southward over greater part of Europe to Egypt (?) and to high mountains of Palestine, Asia Minor, and Persia; migrating in winter southward to northern Africa (as far as Senegal and Canary Islands); accidental in Greenland (Godhavn, two specimens) and Ungava (near Fort Chimo, four specimens, August 29, 1883).

[*Motacilla*] *alba* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 185; ed. 12, i, 1766, 331.—GMELIN, Syst. Nat., i, 1788, 960.—GRAY, Hand-list, i, 1869, 205, no. 3562.

Motacilla alba TEMMINCK, Man. d'Orn., i, 1815, 254; ii, 1820, 255; iv, 1835, 178.—NAUMANN, Vog. Deutschl., iii, 1823, 803, pl. 86, figs. 1–3.—ROUX, Orn. Prov., 1825, pl. 193.—WERNER, Atlas, Insectivores, 1827, pl. 73.—GOULD, Birds Eur., ii, 1837, pl. 143; Birds Gt. Brit., iii, 1863, pl. 2.—MACGILLIVRAY, Hist. Brit. Birds, ii, 1839, 221.—KEYSERLING and BLASIUS, Wirb. Eur., 1840, pp. xlix and 174.—DEGLAND, Orn. Eur., i, 1849, 433.—BONAPARTE, Consp. Av., i, 1850, 250.—KJÆRBOLLING, Danin. Fugle, 1852, pl. 19, fig. 1.—SCHLEGEL, Vög. Nederl., 1854, pls. 100, 101; Dier. Nederl. Vög., 1861, pl. 9, figs. 7, 8, 8a.—SUNDEVALL, Sv. Fogl., 1856, pl. 9, figs. 7, 8.—WALKER, Ibis, 1860, 166 (Godhavn, Greenland, July).—REINHARDT, Ibis, 1861, 6 (Godhavn, s. Greenland; 2 specimens).—NEWTON, in Baring-Gould's Iceland, 1863, 409; ed. Yarrell's Hist. Brit. Birds, i, 1874, 548; Man. Nat. Hist. Greenl., 1875, 98.—GRAY, List Brit. Birds, 1863, 250.—BAIRD, Review Am. Birds, 1864, 152.—DEGLAND and GERBE, Orn. Eur., 1867, 383.—KEULEMANS Onze Vög., i, 1869, 25.—HEUGLIN, Orn. N. O.-Afr., i, 1869–71, 316; iv, p. lxxxviii.—FRITSCH, Vog. Eur., 1870, pl. 21, fig. 14.—SHARPE, Cat. Afr. Birds, 1871, 73; Cat. Birds Brit. Mus., x, 1885, 464, part.—SALVADORI, Faun. Ital., Ucc., 1871, 120.—HARTING, Handb. Brit. Birds, 1872, 23.—SHELLEY, Birds Egypt, 1872, 126.—BAIRD, BREWER and RIDGWAY, Hist. N. Am. Birds, i, 1874, 165, pl. 10, fig. 1.—DRESSER, Birds Europe, iii, 1875, 233, part, pls. 125, 126.—GIGLIOLI, Icon. Avif. Ital., 1881, pl. 163.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 69.—COUES, Check List, 2d ed., 1882, no. 86.—BRITISH ORNITHOLOGISTS' UNION, List Brit. Birds, 1883, 29.—SEEBOHM, Hist. Brit. Birds, iii, 1883, 199.—TRISTRAM, Fauna and Flora Palestine, 1884, 54.—RADDE, Orn. Caucas., 1884, 223, pl. 12.—TURNER, Proc. U. S. Nat. Mus., viii, 1885, 236 (near Fort Chimo, Ungava; 4 specimens, Aug. 29, 1883).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 694.

M[otacilla] alba GRAY, Gen. Birds, i, 1847, 203.—CABANIS, Mus. Hein., i, 1850, 12.—COUES, Key N. Am. Birds, 2d ed., 1884, 284.—RIDGWAY, Man. N. Am. Birds, 1887, 533.

[*Motacilla*] *cinerea* GMELIN, Syst. Nat., i, 1788, 961 (based on *Cinereous Wagtail* Latham, Gen. Synop., ii, pt. 2, 397).

Motacilla albeola PALLAS, Zoogr. Rosso-Asiat., i, 1826, 506, part.

^a Six specimens.

^b Two specimens.

Motacilla septentrionalis BREHM, Vög. Deutschl., 1831, 347.

Motacilla sylvestris BREHM, Vög. Deutschl., 1831, 348.

Motacilla brachyrhynchos BREHM, Vög. Deutschl., 1831, 348.

Motacilla lotor RENNIE, in Montague's Orn. Dict., 2d ed., May 24, 1831, 377 (new name for *M. alba* Linnaeus).

Motacilla gularis SWAINSON, Birds W. Africa, ii, 1837, 38.—HARTLAUB, Orn. W.-Afr., 1857, 72.

Motacilla cervicalis BREHM, Vogelf., 1855, 143.

Motacilla major BREHM, Naumannia, 1855, 280.

Motacilla fasciata BREHM, Naumannia, 1855, 280.

MOTACILLA OCULARIS Swinhoe

SWINHOE'S WAGTAIL.

Similar to *M. alba*, but with a black or dusky streak through eye and much more of white on wing-coverts.

Adult male in spring.—Forehead, superciliary, supra-auricular, auricular, and suborbital regions, lores, sides of neck, and under parts posterior to chest white, the sides and flanks shaded with gray; crown, occiput, nape, postocular streak (along upper edge of auricular region), chin, throat, and chest black; hindneck, back, scapulars, and lesser wing-coverts plain ash gray,^a the rump darker, the upper tail-coverts black, or slate-black, with gray margins, the shorter ones along each side with outer webs largely white; middle and greater wing-coverts with exposed portion white, forming a large patch; tertials with inner webs dusky gray, their outer webs darker gray or blackish broadly edged with white; alula, primary coverts, primaries, and secondaries (except tertials) brownish gray narrowly edged with white or pale gray; eight middle rectrices black, the outer web of middle pair narrowly edged with pale gray or white; two outermost rectrices, on each side, white with black along edge of inner web, that on outermost rectrix extending more than halfway to tip, that on the next reaching nearly to tip; bill, legs, and feet black; iris brown.

Adult female in spring.—Similar to the adult male, but chin, malar region, and upper throat pure white.

Young female in first winter.—Similar to the spring plumage, but gray of upper parts (especially the back) more brownish; pileum gray, like back, but gradually fading into white on forehead; black of under parts restricted to a crescentic patch on chest; white of sides of head, throat, etc., tinged with yellowish; basal half of maxilla pale brownish.

Adult male.—Length (skins), 186–191 (189.3); wing, 87–92 (90); tail, 91–94 (92.6); exposed culmen, 12–13 (12.3); tarsus, 24; middle toe, 15.^b

Adult female.—Length (skins), 176–198 (184.3); wing, 87–92 (89); tail, 83–90 (87); exposed culmen, 13; tarsus, 22–25 (23); middle toe, 12–15 (13.3).^b

Eastern Asia, breeding in eastern Siberia (Tschuktschi Peninsula to Plover Bay), migrating southward to southern China; occasional

^a Nearest to gray no. 6 of my Nomenclature of Colors.

^b Three specimens.

straggler to western Alaska (Attu Island, Aleutian Chain; mouth of Yukon River); accidental in Lower California (La Paz, 1 specimen, January 9, 1882).

Motacilla alba var. *lugens* (not *Motacilla lugens* Kittlitz) MIDDENDORFF, Sibir. Reise, ii, pt. 2, 1853, 166.

Motacilla ocularis SWINHOE, Ibis, Jan., 1860, 55 (Amoy, China; coll. R. Swinhoe); 1863, 94, 309; Proc. Zool. Soc. Lond., 1863, 275; 1870, 129; 1871, 364.—TACZANOWSKI, Journ. für Orn., 1873, 82; 1874, 335; 1875, 252; Bull. Soc. Zool. France, 1876, 150; 1882, 389; Orn. Fauna Vost-Sibir., 1876, 33; Proc. Zool. Soc. Lond., 1887, 603 (Séoul, Corea, Apr.); 1888, 464 (Corea, fall and winter).—PRJEVALSKI, in Rowley's Orn. Misc., ii, 1877, 192.—SEEBOHM, Ibis, 1878, 345; 1883, 92; 1884, 39.—DAVID and OUSTALET, Ois. Chine, 1878, 299.—HUME and DAVIDSON, Stray Feath., 1878, 518.—HUME, Stray Feath., 1879, 103, 413.—SCULLY, Stray Feath., 1879, 312, 315.—RIDGWAY, Proc. U. S. Nat. Mus., iv, 1882, 414 (La Paz, Lower California); vi, 1883, 145, part (crit.); Bull. Nutt. Orn. Club, vii, Oct., 1882, 257 (La Paz).—BEAN, Proc. U. S. Nat. Mus., v, 1882, 147 (Plover Bay, Siberia).—NELSON, Cruise "Corwin," 1883, 62, pl. not numbered (Plover Bay); Nat. Hist. Coll. Alaska, 1887, 205 (Plover Bay, etc.).—BELDING, Proc. U. S. Nat. Mus., v, 1883, 535 (La Paz).—OATES, Birds Brit. Burma, i, 1883, 158.—DYBOWSKI, Bull. Soc. Zool. France, viii, 1883, 360.—STEJNEGER, Naturen, 1884, 5 (Bering I., Kamchatka; accidental); Bull. U. S. Nat. Mus., no. 29, 1885, 284' (do.); Proc. U. S. Nat. Mus., x, 1887, 145 (do.).—BLAKISTON, Amend. List Birds Jap., 1884, 54.—(?) TURNER, Auk, ii, 1885, 157 (Attu I., Aleutians; accidental); Contr. Nat. Hist. Alaska, 1886, 178, pl. 11.—SHARPE, Cat. Birds Brit. Mus., x, 1885, 471, pl. 4, figs. 5, 6.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 695.—BISHOP, N. Am. Fauna, no. 19, 1900, 91 (Aphoon, mouth of Yukon R., Alaska, 1 flock, Aug. 28).

[*Motacilla*] *ocularis* GRAY, Hand-list, i, 1869, 246, no. 3576 (excl. syn.).

M[*otacilla*] *ocularis* COUES, Key N. Am. Birds, 2d ed., 1884, 284.—RIDGWAY, Man. N. Am. Birds, 1887, 533.

Motacilla alba . . . subsp. *ocularis* PALMÉN, Vega-Exp., 1887, 267 (Tschuktsch-halfön, n. e. Siberia, June 21).

Motacilla baicalensis var. *temporalis* SWINHOE, Proc. Zool. Soc. Lond., 1871, 363.

Genus BUDYTES Cuvier.

Budytes CUVIER, Règne Anim., i, 1817, 371. (Type, *Motacilla flava* Linnæus.)

Motacillidæ with yellow under parts, but with the hind claw longer than its digit, slender and slightly arched; otherwise essentially as in *Motacilla*, but with tail relatively shorter and tarsus longer (the former decidedly shorter than the wing, the latter nearly twice to more than twice as long as exposed culmen), and tip of wing usually more pointed, with outermost (ninth) primary longest or at least decidedly longer than the sixth, which is abruptly longer than the fifth.

Coloration.—Under parts yellow, without black on throat or chest; back olive-green; or if gray or black the whole head yellow.

Nidification.—Nest on ground, usually concealed by tufts of grass, open above, bulky, composed of grasses, mosses, rootlets, etc., lined with softer materials; eggs whitish or pale bluish, freckled, mottled, or speckled with brown.

Range.—Palearctic Region.

KEY TO SUBSPECIES OF *BUDYTES FLAVUS*.

- a. Under parts distinctly yellow; pileum and hindneck gray, in contrast with olive-greenish of back. (Adults.)
 - b. Under parts deeper and purer yellow (lemon yellow), throat always (?) wholly yellow, only the chin being white; back brighter olive-green. (Europe, etc.)
Budytes flavus flavus (extralimital)^a
 - bb. Under parts paler and duller yellow; throat always (?) more or less white on upper portion; back duller olive-green.
 - c. Brighter yellow below, with less of dusky spotting on chest; back and rump brighter olive-green; larger, especially the bill (adult male averaging wing 79.9, exposed culmen 12.6; adult female averaging wing 76.2, exposed culmen 12.8). (Eastern Siberia and Kamchatka, south in winter to southern Asia, etc.).....*Budytes flavus leucostratus* (extralimital)^b
 - cc. Duller and paler yellow below, with more of dusky on chest; back and rump duller olive-green (the back more grayish); smaller, especially the bill (adult male averaging wing 77.4, exposed culmen 11.7; adult female averaging wing 74.6, exposed culmen 11.7). (Western Alaska, north of the Alaskan peninsula, in summer; probably migrating through eastern Asia to the Philippine Islands in winter.).....*Budytes flavus alascensis* (p. 8)
- aa. Under parts dull buffy yellow or light yellowish buff, or dull whitish sometimes clouded with dusky on chest; pileum and hindneck olive or grayish brown, like back. (Young.^c)

BUDYTES FLAVUS ALASCENSIS*, new subspecies.^d*ALASKAN YELLOW WAGTAIL.**

Similar to *B. f. leucostratus*, but slightly smaller, especially the bill; coloration duller, the yellow of under parts paler and less pure, the chest more distinctly clouded or blotched with grayish, the olive-green of rump, etc., less pronounced.

^a[*Motacilla*] *flava* Linnæus Syst. Nat., ed. 10, 1758, 185.—*Motacilla flava* Naumann, Vög. Deutschl., iii, 1823, 839, pl. 88; Dresser, Birds Europe, iii, 1875, 261, pl. 129, part, figs. 1, 2; Sharpe, Cat. Birds Brit. Mus., x, 1885, 516, part.—*Budytes flava* Cuvier, Règne An., 1817, 371; Fritsch, Vög. Eur., 1870, pl. 17, figs. 17, 18.—*Parus luteus* Gmelin (S. G.), Reis. Russl., iii, 1774, 101, pl. 20, fig. 1.—*Parus caspicus* Gmelin (S. G.), Reis. Russl., iii, 1774, 104, pl. 20, fig. 2.—*Motacilla chrysogastra* Bechstein, Kurze Uebers., 1811, 327.—*Motacilla flavesceus* Stephens, Shaw's Gen. Zool., pt. 2, 1817, 559.—*Motacilla neglecta* Gould, Proc. Zool. Soc. Lond., 1833, 129; Birds Europe, ii, 1837, pl. 146.—*Motacilla gouldi* Macgillivray, Man. Brit. Birds, i, 1840, 163.—*Motacilla flava vulgaris* Sundevall, Öfv. k. Vet.-Ak. Förh. Stockh., 1840, 53.—*Budytes fasciatus* Brehm, Vogelf., 1855, 141.

^b*Motacilla flareola* (part) Pallas, Zoogr. Rosso-Asiat., i, 1826, 501.—*Motacilla flava* (not of Linnæus) Middendorff, Sibir. Reise, ii, pt. 2, 1853, 168; Schrenck, Reise Amurl., i, 1860, 345; Radde, Reisen Süden Ost-Sibir., ii, 1863, 229; Sharpe, Cat. Birds Brit. Mus., x, 1885, 516, part.—*Budytes flava* Swinhoe, Proc. Zool. Soc. Lond., 1863, 274 (n. China; crit.); Taczanowski, Journ. für Orn., 1875, 252 (Ussuri).—*Budytes flavus* Swinhoe, Proc. Zool. Soc. Lond., 1871, 364 (China).—*Budytes leucostratus* Homeyer, Journ. für Orn., xxvi, Jan., 1878, 128 (Baikal).—*Budytes flavus leucostratus* Stejneger, Bull. U. S. Nat. Mus., no. 29, 1885, 280 (Bering islands and Petropaulski, Kamchatka; syn., crit., etc.).—*Budytes leucostratus* Taczanowski, Bull. Soc. Zool. France, 1882, 389.

^cThe series of young birds available is much too small to enable me to give sub-specific characters.

^dType no. 73231, coll. U. S. Nat. Mus., adult male, St. Michael, Alaska, June 1, 1877; L. M. Turner.

Adult male in spring and summer.—Pileum and hindneck plain slate color or slate-gray; auricular region similar, but rather darker, the lores and suborbital region still darker, sometimes almost black; a distinct white superciliary stripe, narrower anteriorly; back and scapulars dull olive-green (the feathers somewhat darker centrally), becoming brighter olive-green on rump, the upper tail-coverts dusky, edged with olive-green; wings dusky, with pale grayish brown edgings, the middle and greater coverts margined terminally with pale olive or whitish, the tertials edged with the same; tail dusky (rather darker than wings), the rectrices edged with pale grayish brown or olive; exterior rectrix white, with inner portion of its inner web dusky, except toward end; next rectrix with inner web chiefly white for terminal half or more but dusky toward edge; anterior portion (sometimes the whole) of malar region, chin, and (usually, at least) more or less of upper throat white; rest of under parts light yellow (intermediate between canary and naples yellow), the chest more or less clouded or spotted with grayish dusky or olive; bill, legs, and feet black, or brownish black; iris brown; length (skins), 133–166 (153.4); wing, 74–82 (77.4); tail, 65–71 (67.5); exposed culmen, 11–12 (11.7); tarsus, 23–26.5 (24.5); middle toe, 14–16 (15); hind claw, 9–13 (10.5).^a

Adult female in spring and summer.—Similar to the adult male of corresponding season and apparently not always distinguishable, but usually considerably duller in color, with gray of the head more brownish; length (skins), 144–161 (151.6); wing, 73–77 (74.6); tail, 64–70.5 (65.8); exposed culmen, 11–12 (11.7); tarsus, 23.5–26 (24.4); middle toe, 14–16 (15.1); hind claw, 10–13 (10.9).^b

Young male in first autumn.—Above plain olive, more grayish on head and rump; wings and tail as in adults; superciliary stripe, chin, and throat pale straw yellow, the first two paler, nearly white; rest of under parts pale buffy yellow or yellowish buff, paler (nearly white) on under tail-coverts; chest tinged with brown, and with a distinct crescentic patch of darker brown; sides and flanks light grayish brown or olive.

Young females in first autumn.—Similar to the young male of corresponding season, but chest less strongly tinged with brown and with only a few spots of darker brown.

Young, nestling plumage.—Above olive-brown, the wings and tail as in the autumnal plumage; superciliary stripe, malar stripe, and under parts pale yellowish buff, relieved by a conspicuous crescentic

^a Eleven specimens.

^b Five specimens.

Specimens of *Budytes flavus leucostriatus* measure as follows:

Adult males.—Wing, 77–82 (79.9); tail, 68–73 (70.3); exposed culmen, 12–13 (12.6); tarsus, 25; middle toe, 15–16.5 (15.6); hind claw, 10–13 (11.8). (Seven specimens.)

Adult females.—Wing, 73–78 (76.2); tail, 63–69 (65.4); exposed culmen, 12–13.5 (12.8); tarsus, 24–26 (25); middle toe, 14–16 (15.5); hind claw, 10–13 (11.3). (Six specimens.)

patch on chest of sooty black, connected laterally with a submalar stripe of the same color along each side of throat; bill, legs, and feet brownish.

Western Alaska (coast near mouth of Nushagak River, Norton Sound, Kotzebue Sound, Choris Peninsula, near Point Barrow, etc.) in summer; migrating westward through eastern Asia by an undetermined route;^a winter residence unknown; more western (nearer) Aleutian Islands in late summer.

Budytes flava (not *Motacilla flava* Linnæus) BAIRD, Trans. Chicago Ac. Sci., i, 1869, 3, pl. 30, fig. 1 (St. Michael, Alaska).—DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 277 (St. Michael, Alaska, June 9–Aug.).—HARTING, Proc. Zool. Soc. Lond., 1871, 114 (Choris Peninsula, Alaska).—TRISTRAM, Ibis, 1871, 231 (St. Michael; crit.).—FINSCH, Abh. Brem. Nat. Ver., iii, 1872, 37.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 167, pl. 10, fig. 2.—RIDGWAY, Bull. Nutt. Orn. Club, iii, 1878, 38 (St. Michael; abundant, breeding).—NELSON, Bull. Nutt. Orn. Club, v, 1880, 34 (St. Michael); vi, 1881, 4 (St. Michael); Cruise of "Corwin," 1881 (1883), 62 part (mouths of Yukon, Kotzebue Sound, etc., Alaska).

B[udytes] flavus COUES, Key N. Am. Birds, 2d ed., 1884, 284.

Budytes flavus TURNER, Auk, ii, 1885, 157 (Nearer islands, Aleutian group, late summer visit.).

Motacilla flava (not of Linnæus) ADAMS, Ibis, 1878, 423 (St. Michael, breeding; descr. nest and eggs).

Budytes flavus leucostriatus (not *Budytes leucostriatus* Homeyer) STEJNEGER, Bull. U. S. Nat. Mus., no. 29, 1885, 128, part (Alaskan specimens).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 696, part.—TURNER, Contr. Nat. Hist. Alaska, 1886, 179 (St. Michael; mouths of Yukon, mouth of Kuskokwim, and Nushagak; habits).—NELSON, Rep. Nat. Hist. Coll. Alaska, 1887, 205, part (St. Michael; St. Matthews, and St. Lawrence islands, Bering sea; habits; descriptions).—STONE, Proc. Ac. Nat. Sci. Phila., 1900, 33 (Point Barrow, Alaska, June, Aug.).

B[udytes] flavus leucostriatus RIDGWAY, Man. N. Am. Birds, 1887, 535.

Genus ANTHUS Bechstein.

Anthus BECHSTEIN, Gem. Naturg. Deutschl., iii, 1807, 704. (Type, by elimination, *A. aquaticus* Bechstein, = *Alauda spinoletta* Linnæus.)

Spipola LEACH, Syst. Cat. Mam. and Birds, 1816, 21. (Type, *Alauda pratensis* Linnæus.)

Corydalla VIGORS, Zool. Journ., ii, 1826, 397. (Type, *Anthus richardi* Vieillot.)

Pipastes KAUP, Natürl. Syst., 1829, 33. (Type, *Alauda arborea* Gmelin, = *A. trivialis* Linnæus.)

Leimoniptera^b KAUP, Natürl. Syst., 1829, 39. (Type, *Alauda pratensis* Linnæus.)

Agródroma SWAINSON, Classif. Birds, ii, 1837, 241. (Type, *Anthus rufescens* Temminck, = *Alauda campestris* Linnæus.)

Achlops HODGSON, in Gray's Zool. Misc., 1844, 83. (Type *C. monticolus* Hodgson, = *Anthus richardi* Vieillot.)

Cinædium^c SUNDEVALL, Öfv. k. Vet.-Ak. Förh. Stockh., 1850 (pub. 1851), 100. (Type, *Anthus lineiventris* Sundevall.)

^a Winter specimens from the Philippine Islands apparently belong to this form; but owing to the fact that no winter specimens undoubtedly belonging to this subspecies are available for comparison their identification is uncertain.

^b Erroneously cited as *Leimoniptila* in Cat. Birds Brit. Mus., x, 534.

^c Erroneously cited as *Cynædium* in Cat. Birds Brit. Mus., x, 534.

Neocorys SCLATER, Proc. Zool. Soc. Lond., 1857, 5. (Type, *Alauda spragueii* Audubon.)

Notiocorys BAIRD, Review Am. Birds, Oct. 1864, 151, 156. (Type, "*Alauda rufa* Gmelin," = *Anthus parvus* Lawrence.)

Pediacorys^a BAIRD, Review Am. Birds, Oct., 1864, 151, 157. (Type, *Anthus bogotensis* Sclater.)

Xanthocorys SHARPE, Cat. Birds Brit. Mus., x, 1885, 457, 619. (Type, *Anthus nattereri* Sclater.)

Motacillidæ, with the plumage more or less streaked, tail decidedly shorter than wing, the under parts neither pure white,^b yellow,^{b c d} orange,^d nor red,^d but more or less buffy or cinnamonaceous, and more or less streaked, at least on sides, and without black on chest or throat, except in form of streaks; planta tarsi not scutellate, except the lower portion.^c

Range.—Cosmopolitan (wanting only in Papuan islands and Polynesia). (Numerous species.)

Nidification.—Nest on ground, among grass tufts or rocks, open above, composed of grasses, etc., lined with softer materials; eggs profusely speckled with brown, often so densely as to appear almost uniformly of that color.

The above combination of characters will serve to readily distinguish this genus from other Motacillidæ. I have not been able to satisfactorily subdivide the group, for, notwithstanding very marked variations in relative length of the hallux and its claw to that of the middle toe and tarsus and in the wing formula, there seems to be no correlation of these variations with one another or with other characters, while at the same time the most extreme variations seem to be connected by intermediate conditions. This is apparently the case both as to *Neocorys* and *Xanthocorys*; and if these are recognized as genera it will certainly be necessary to recognize other groups as of equal rank.

KEY TO THE SPECIES OF ANTHUS.

- a. Sixth primary conspicuously longer than fifth, the difference between them very much greater than that between fifth and fourth; wing more than 75 mm. (usually very much more).
- b. Hallux and claw together not longer than middle toe and claw and shorter than tarsus.
- c. Rump and upper tail-coverts not streaked; second rectrix partly white. (North America.).....*Anthus pensilvanicus* (p. 12)
- cc. Rump and upper tail-coverts conspicuously streaked with darker. (Northern Europe and Asia, south in winter to northeastern Africa and southern Asia; accidental in Alaska and Lower California.).....*Anthus cervinus* (p. 15)

^a Erroneously given as *Pediacorys* in Cat. Birds Brit. Mus., x, 534, and the page wrongly cited as 15 (as also in case of *Notiocorys*).

^b To exclude genera *Motacilla* and *Limnodromus*.

^c To exclude genera *Motacilla*, *Budytes*, and *Macronyx*.

^d To exclude genus *Macronyx*.

^e To exclude genus *Oreocorys*.

- bb. Hallux and claw together longer than middle toe and claw, equal to or longer than tarsus.
- c. Sides and flanks conspicuously streaked with dusky; wing nearly four times as long as tarsus, the latter less than twice as long as exposed culmen. (Europe, south in winter to northeastern Africa and western Asia; occasional in Greenland.) *Anthus pratensis* (p. 18)
- cc. Sides and flanks not distinctly, if at all, streaked (except in young); wing much less than four times as long as tarsus, the latter not less than twice as long as exposed culmen. (Interior plains of North America.) *Anthus spragueii* (p. 20)
- aa. Sixth primary not conspicuously longer than fifth, the difference between them not greater than that between fifth and fourth; wing less than 65 mm., usually much less. (Isthmus of Panama.) *Anthus parvus* (p. 22)

ANTHUS PENSILVANICUS (Latham).

AMERICAN PIPIT.

Adults (sexes alike) in spring and summer.—Above grayish olive or hair brown, usually more or less inclining to gray, especially on pileum and hindneck, the feathers of pileum, back, and scapulars darker centrally, forming indistinct streaks; wings and tail dusky with pale grayish olive or olive-grayish edgings, the middle wing-coverts margined terminally with pale grayish buffy, dull grayish, or dull whitish, the greater coverts also sometimes margined at tips with the same; pale edgings to tertials, especially the longer, sometimes passing into whitish terminally; outermost rectrix with outer web and shaft, except at base, and nearly the terminal half of inner web white, that on inner web extending much more than halfway to the base next to shaft, the dusky of basal portion extending more than two-thirds the distance toward tip along inner edge; second rectrix with a terminal white space, this also extending much farther externally than internally; third rectrix sometimes also with a small wedge-shaped mark of white at tip; a superciliary stripe and entire under parts varying from pinkish buff to deep cinnamon-buff or vinaceous buffy cinnamon, the chest, sides, and flanks usually more or less streaked with dusky, but sometimes the entire under surface immaculate, except for a few very indistinct streaks of dusky grayish on flanks; bill dusky brown, nearly black on culmen and tip, the mandible paler (more horn colored) basally; iris brown; legs and feet black or brownish black or else the tarsi dark brownish.

Adults in winter.—Similar to the spring and summer plumage, but general color of upper parts much browner or more olivaceous, superciliary stripe and under parts much paler, varying from dull cream-buff to dull buffy white, the chest, sides, and flanks (especially the first) more heavily streaked with brown or dusky; mandible more extensively light colored, and legs and feet black never (?) blackish, but brown, the toes usually somewhat darker.

Young in second summer.^a—Upper parts grayish, as in summer adults, but superciliary stripe and under parts paler (dull pale buffy or dull buffy white) than in winter adults, the chest, sides, and flanks conspicuously streaked with dusky; bill and feet blackish, as in summer adults.

Young in first autumn and winter.—Similar to winter adults, but upper parts decidedly brown and superciliary stripe and under parts rather deeper brownish buff, with streaks on chest, etc., less sharply defined.

Young, first plumage.—Similar to winter adults, but scapulars and interscapulars much darker centrally, the dorsal region being distinctly spotted with dusky, pale superciliary stripe indistinct or obsolete; streaks on chest and sides of lower throat blacker, usually heavier, those on sides and flanks indistinct or obsolete.

Adult male.—Length (skins), 140–160 (149.6); wing, 78–92 (85.1); tail, 57.5–70 (64.7); exposed culmen, 11–13 (12.5); tarsus, 20.5–23 (21.7); middle toe, 13–15 (14.4); hind claw, 7–11 (8.9).^b

Adult female.—Length (skins), 135–155 (146.7); wing, 78–87 (81.9); tail, 60–66 (62.2); exposed culmen, 11–13 (12.1); tarsus, 21–22.5 (21.7); middle toe, 13.5–15 (14.4); hind claw, 7–11 (9.4).^c

^a The species breeds in this plumage, which is very different from the fully adult summer dress.

^b Thirty specimens.

^c Twenty specimens.

Specimens from separate geographic areas (nearly all breeding birds) average, respectively, as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.	Hind claw.
MALES.						
Ten adult males from northeastern North America.	83.6	64.5	11.9	21.5	14.1	9.4
Ten adult males (breeding birds) from Colorado ...	89	66.3	12.6	22.4	14.7	7.6
Ten adult males from Pacific coast (nearly all breeding)	82.6	63.4	11.9	21.5	14.3	9
FEMALES.						
Seven adult females from northeastern North America	81.3	62.1	11.9	21.8	14.8	9.7
Six adult females (all breeding birds) from Colorado	83.2	62.2	12.5	21.5	14	8.5
Seven adult females (mostly breeding) from Pacific coast	81.1	62.2	12	21.9	14.3	9.7

Nearly all the specimens from Colorado, especially the females, were taken after the middle of July, and have the primaries and rectrices much worn at ends; consequently Colorado specimens in unworn plumage would show greater average length of wing and tail.

I am unable to make out any constant difference in coloration according to locality. Possibly western specimens (including both the Rocky Mountain and Alaskan series) average a little paler, with the chest more often unstreaked, or but slightly streaked, than eastern, but the individual variation is so great in examples from any locality that I doubt the possibility of subdividing the species satisfactorily.

The whole of North America, breeding from Newfoundland, Province of Quebec (Point de Monts?), high mountains of Colorado and the Sierra Nevada (above timber line, 13,000 feet and upward) northward, including the Shumagin and Aleutian islands, Alaska, and northeastern Siberia (Tschuktschi Peninsula); Greenland (breeding?); in winter southward over whole of United States and greater part of Mexico to highlands of Guatemala, and to Bermudas; accidental in Heligoland (two specimens).

[*Alauda pensilvanica* LATHAM, Synop. Birds, Suppl., i, 1787, 287 (based on *The Lark from Pensilvania* Edwards, Glean. Nat. Hist., ii, 185, pl. 297; *L'Alouette de Pensilvanie* Brisson, Orn., vi, App. 94).

Anthus pennsylvanicus THIENEMANN, Rhea, ii, 1849, 171 (monogr.).—ZANDER, Journ. für Orn., i, 1853, Extrah. 1854, 63 (monogr.); Naumannia, iv, 1854, 13 (monogr.)

Anthus pensilvanicus STEJNEGER, Auk, i, April, 1884, 168.—BICKNELL, Auk, i, 1884, 209 (song).—TURNER, Proc. U. S. Nat. Mus., viii, 1885, 236 (Fort Chimo, Ungava, breeding); Contr. Nat. Hist. Alaska, 1886, 180 (Aleutian Islands, St. Michael, etc.).—AMERICAN ORNITHOLOGIST'S UNION, Check List, 1886, no. 697.—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 136 (Puebla, Mexico, Dec.).—NELSON, Rep. Nat. Hist. Coll. Alaska, 1887, 208.—TOWNSEND, Auk, iv, 1887, 13 (Kowak R., Alaska, summer).—BRYANT, Bull. Coll. Ac. Sci., ii, 1887, 307 (Guadalupe I., Lower California, flock, Feb. 2).—PALMÉN, Vega-Exp., 1887, 272 (Tschuktsch-halfön, n. e. Siberia, June 10).—RIDGWAY, Orn. Ills., i, 1889, 111.—CHAPMAN, Bull. Am. Mus. N. H., x, 1898, 39 (Las Vigas, Vera Cruz, 8,000 ft).—BIGELOW, Auk, xix, 1902, 30 (Newfoundland, breeding).

A[nthus] pensilvanicus RIDGWAY, Man. N. Am. Birds, 1887, 536.

Anthus pennsylvanicus GAETKE, Journ. für Orn., 1856, 71 (Heligoland).—PALMER (W.), Proc. U. S. Nat. Mus., xiii, 1890, 265 (Cloud Hills, Canada Bay, Newfoundland, breeding at 1,000 ft.).—BEYER, Proc. Louis. Soc. Nat., 1897-99 (1900), 115 (Louisiana, winter resid.).

[*Anthus spipoletta*.] Subsp. α . *Anthus pennsylvanicus* SHARPE, Cat. Birds Brit. Mus., x, 1885, 596.

A[nthus] pennsylvanicus JORDAN, Man. Vert. E. U. S., 4th ed., 1884, 57.

Anthus pensilvanicus TURNER, Auk, ii, 1885, 157 (Nearer Islands, Aleutian Chain, Alaska, breeding).

[*Alauda ludoviciana* GMELIN, Syst. Nat., i, pt. 2, 1788, 793 (based on *Louisiane Lark* Latham, Gen. Synop., ii, pt. 2, 376).—LATHAM, Index Orn., ii, 1790, 494.

Anthus ludovicianus LICHTENSTEIN, Verz. Doubl., 1823, 37.—BONAPARTE, Geog. and Comp. List, 1838, 18.—AUDUBON, Synopsis, 1839, 94; Birds Am., oct. ed., iii, 1841, 40, pl. 150.—NUTTALL, Man. Orn. U. S. and Can., ed. 2, i, 1840, 517.—JARDINE, Contr. Orn., 1848, 82 (Bermudas, autumnal visitor).—HURDIS, Jardine's Contr. Orn., 1850, 36 (Bermudas, Nov.).—REINHARDT, Journ. für Orn., 1854, 439; Ibis, 1861, 6 (Greenland).—SCLATER, Proc. Zool. Soc. Lond., 1856, 293 (Cordova, Vera Cruz); 1857, 126 (San José Valley, California); Cat. Am. Birds, 1862, 24 (Petaluma, California).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 232; Cat. N. Am. Birds, 1859, no. 165; Review Am. Birds, 1864, 153.—JONES, Nat. in Bermuda, 1859, 29 (Bermudas, in autumn).—BLAND, Ann. Rep. Smithson. Inst. for 1859 (1860), 287 (Bermudas).—REINHARDT, Ibis, 1861, 6 (Greenland).—SCLATER and SALVIN, Ibis, 1859, 9 (Dueñas, Guatemala, Feb.).—BLASIUS, Ibis, 1862, 71 (Heligoland, accid.).—BLAKISTON, Ibis, 1862, 4 (Saskatchewan).—DUGÈS, La Natureza, i, 1868,

- 140 (Guanajuato, Mexico).—BROWN, Ibis, 1868, 420 (Vancouver I.).—DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 277 (Alaska).—COOPER, Orn. Cal., 1870, 78.—ALLEN, Bull. Mus. Comp. Zool., ii, 1871, 267 (e. Florida, winter resid.); iii, 1872, 161 (Mount Lincoln, Colorado, breeding).—COUES, Check List, 1873, no. 55; 2d ed., 1882, no. 89; Birds N. W., 1874, 40; Birds Col. Val., 1878, 193.—HARTING, Handb. Brit. Birds, 1872, 107.—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 268 (Mazatlan, Sinaloa, winter); Bull. U. S. Nat. Mus., no. 4, 1876, 14 (Tehuantepec City, Oaxaca, Nov. 1).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 171, pl. 10, fig. 3; iii, 1874, 504 (breeding on Mt. Lincoln, Colorado, above 13,000 ft.).—DRESSER, Birds Europe, iii, 1874, 331, pl. 139.—CORDEAUX, Ibis, 1875, 181 (Heligoland; 2 specs.).—HENSHAW, Zool. Exp. W. 100th Merid., 1875, 187.—NEWTON, Man. Nat. Hist. Greenl., 1875, 98 (Greenland; breeding?).—D'HAMONVILLE, Ois. Eur., 1876, — (Heligoland).—BREWER, Bull. Nat. Orn. Club, iii, 1878, 194 (Swampscott, Massachusetts, 1 spec., June 8).—SCOTT (W. E. D.), Bull. Nutt. Orn. Club, iv, 1879, 92 (Lake Co., Colorado, breeding at 13,000 ft.).—SALVIN, and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 108.—RIDGWAY, Orn. 40th Parallel, 1877, 426 (Nevada, winter); Nom. N. Am. Birds, 1881, no. 71.—DREW, Bull. Nutt. Orn. Club, vi, 1881, 88 (San Juan Co., Colorado, breeding above timber line; remarks on variations of plumage).—MERRIAM, Bull. Nutt. Orn. Club, vii, 1882, 234 (Point de Monte, Quebec; breeding?).—BEAN, Proc. U. S. Nat. Mus., v, 1882, 147 (Shumagin Islands, July; Cape Lisburne, Aug.).
- A[nthus] ludovicianus* GRAY, Gen. Birds, i, 1847, 146.—CABANIS, Mus. Hein., i, 1850, 14.—COUES, Key N. Am. Birds, 2d ed., 1884, 286.
- [*Anthus*] *ludoviciana* BONAPARTE, Consp. Av., i, 1850, 249.
- [*Anthus*] *ludovicianus* GRAY, Hand-list, i, 1869, 250, no. 3619.—COUES, Key N. Am. Birds, 1872, 90.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 8.
- A[nthus] spinoletta*, var. *ludovicianus* SEEBOHM, Hist. Brit. Birds, ii, 1883, 249, in text.
- [*Alauda*] *rubra* GMELIN, Syst. Nat., i, pt. 2, 1788, 794 (based on *Red Lark* Latham, Gen. Synop., ii, pt. 2, 377; Pennant, Arct. Zool., ii, 393).—LATHAM, Index Orn., ii, 1790, 494.
- [*Motacilla*] *hudsonica* LATHAM, Index Orn., Suppl., ii, 1801, 503 (based on *Hudsonian Wagtail* Latham, Gen. Synop., Suppl., ii, 231).—VIEILLOR, Ois. Am. Sept., ii, 1807, 47; Enc. Méth., ii, 1823, 409.
- Alauda rufa* (not of Gmelin) WILSON, Am. Orn., v, 1812, 89, pl. 42, fig. 4.—BONAPARTE, Journ. Ac. Nat. Sci. Philad., iv, 1824, 181.
- Anthus rubens* MERREM, in Ersch & Gruber's Encycl., iv, 1820, 290.
- Anthus spinoletta* (not *Alauda spinoletta* Linnæus) BONAPARTE, Journ. Ac. Nat. Sci. Philad., ii, 1826, 90.—NUTTALL, Man. Orn. U. S. and Can., i, 1832, 450.—TOWNSEND, Journ. Ac. Nat. Sci. Philad., viii, 1839, 154 (Columbia R.).
- Anthus aquaticus* (not of Bechstein) AUDUBON, Orn. Biog., i (name on pl. 10).—SWAINSON and RICHARDSON, Fauna Bor.-Am., ii, 1831, 231, pl. 44.
- Anthus pipiens* AUDUBON, Orn. Biog., i, 1832, 408, pl. 80; v, 1839, 449, pl. 80.—BONAPARTE, Geog. and Comp. List, 1838, 28.
- Anthus reinhardii* HOLBÖLL, Fauna Grœnl. (ed. Paulsen), 1846, 25.
- Anthus hypogæus* BONAPARTE, Compt. Rend., xxxviii, 1854, 65.

ANTHUS CERVINUS (Pallas).

VINACEOUS-THROATED PIPIT.

Adults in spring and summer (sexes alike).—Above light grayish brown (nearly hair brown or broccoli brown) streaked with dusky, the streaks broadest on back and rump; wings and tail dusky with pale

grayish brown edgings, the middle and greater wing-coverts broadly margined at tips with dull white,^a the tertials broadly edged with the same; outermost primary narrowly edged with white; outermost rectrix with terminal and most of outer portion white, the next rectrix sometimes with a small white spot at tip of inner web; a broad superciliary stripe, most of loreal and suborbital regions, malar region, chin, and throat plain vinaceous-cinnamon or fawn color, this sometimes extending over chest; rest of under parts pale buff or buffy white, the sides and flanks, usually also the chest, more rarely the longer under tail-coverts, rather broadly streaked with dusky; maxilla dark brown or brownish black, paler on tomia; mandible pale brownish, darker terminally; iris brown; legs and feet brownish, the tarsi usually paler than toes.

Adults in autumn and winter.^b—Similar to the spring and summer plumage, but upper parts more buffy brown, with dusky streaks less sharply defined, and under parts of body more strongly buffy or buffy yellow.

Immature (second year?).—Similar to adults, but malar stripe, chin, and throat pale buff or buffy whitish, like rest of under parts, superciliary stripe also pale buffy or buffy whitish (at least anteriorly) and chest always (?) heavily streaked with blackish.

Young in first autumn.—Similar to the supposed immature plumage, as described above, but general color of upper parts much more decidedly brownish and under parts deep creamy buff.

Adult male.—Length (skins), 125–158 (144.6); wing, 80–89 (84); tail, 57–62 (59.8); exposed culmen, 11–12 (11.8); tarsus, 21–22 (21.5); middle toe, 15; hind claw, 9–12 (10).^c

Adult female.—Length (skins), 128–153 (140.5); wing, 80–83 (81.5); tail, 55–62 (58.5); exposed culmen, 12; tarsus, 22; middle toe, 15; hind claw, 10–11 (10.5).^d

^aThese whitish tips usually worn away in midsummer, at least on the greater coverts.

^bExamination of specimens renders it quite certain that the vinaceous color of the throat in this species has nothing to do with season.

^cSix specimens.

^dTwo specimens.

Western and eastern specimens compare in average measurements as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.	Hind claw.
MALES.						
Three adult males from Norway (1) and Egypt (2) ..	86	61	11.6	21	15	10
Three adult males from Japan (1) and China (2)	84	59.8	12	22	15	10
FEMALES.						
One adult female from Egypt.....	83	62	12	22	15	10
One adult female from China.....	80	55	12	22	15	11

Entire Palearctic Region, but chiefly east of Ural Mountains; breeding on the *tundra* districts of northern Siberia, and, locally, northern Europe; migrating southward in winter to southern China, Burma, Andaman Islands, India, Persia, Egypt, Nubia, and Abyssinia; accidental in western Alaska (Aleutian Islands; St. Michael, one specimen),^a and in Lower California (San José del Cabo, one specimen, January 26, 1883.)

Motacilla cervina PALLAS, Zoogr. Rosso-Asiat., i, 1826, 511.

Anthus cervinus KEYSERLING and BLASIUS, Wirb. Eur., i, 1840, pp. xlviii, 172.—

MIDDENDORFF, Sibir. Reis., 1851, 165.—ZANDER, Journ. für Orn., 1853, Extraheft, i, 64 (Aleutian Islands).—SUNDEVALL, Svensk. Vogl., 1858, pl. 8, fig. 6.—PÄSSLER, Journ. für Orn., 1859, 464-469 (monographic).—DEGLAND and GERBE, Orn. Eur., i, 1867, 369.—LOCHE, Exped. Sci. Algér., Ois., ii, 1867, 17.—GOULD, Birds, Asia, iv, 1869, pl. 66; Birds Gt. Brit., iii, 1870, pl. 12.—FRITSCH, Vög. Eur., pl. 16, fig. 5.—SALVADORI, Fauna Ital., Ucc, 1871, 126.—HARTING, Handb. Brit. Birds, 1872, 109.—SHELLEY, Birds Egypt, 1872, 121.—NEWTON, ed. Yarell's Hist. Brit. Birds, i, 1874, 579.—DRESSER, Birds Eur., iii, 1874, 299, pls. 135, 136.—BLYTH and WALDEN, Birds Burma, 1875, 96.—DAVID and OUSTALET, Ois. Chine, 1877, 306.—RIDGWAY, Proc. U. S. Nat. Mus., vi, 1883, 156, 350 (San José del Cabo, Lower California, Jan. 26, 1883; 1 spec.).—BELDING, Proc. U. S. Nat. Mus., vi., 1883, 350 (San José del Cabo).—BRITISH ORNITHOLOGISTS' UNION, List Brit. Birds, 1883, 32.—SEEBOHM, Hist. Brit. Birds, ii, 1883, 229.—TRISTRAM, Fauna and Flora Palestine, 1884, 55.—RADDE, Orn. Cauc., 1884, 219.—SHARPE, Cat. Birds Brit. Mus., x, 1885, 585.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 699.—TURNER, Contr. Nat. Hist. Alaska, 1886, 180, pl. 9, lower fig. (St. Michael, Alaska).—NELSON, Rep. Nat. Hist. Coll. Alaska, 1887, 209 (St. Michael; Aleutians?).—STEJNBERGER, Proc. U. S. Nat. Mus., x, 1887, 144 (Bering I., Kamchatka, 1 spec., spring); xxi, 1898, 287 (Kuril Islands; breeding?).—SAUNDERS, Bull. Brit. Orn. Club, xii, 1901, 35 (Winfield, Sussex, England, 1 spec., Nov. 26, 1901). *A[nt]hus cervinus* CABANIS, Mus. Hein., i, 1850, 14 (Greece).—RIDGWAY, Man. N. Am. Birds, 1887, 537.

Anthus ceciliæ AUDOUIN, Hist. Nat. de l'Egypte, Ois., 1828, 360, pl. 5, fig. 6.—BLANFORD, Geol. and Zool. Abyssin., 1870, 382.

Anthus pratensis nubicus HEMPRICH and EHSMANN, Symb. Phys., 1828, fol. ed.

Anthus rufogularis BEEHM, Vög. Deutschl., 1831, 340.—GOULD, Birds Eur., ii, 1837, pl. 140.—BONAPARTE, Geog. and Comp. List, 1838, 18.—MIDDENDORFF, Sibir. Reis., 1851, 164.

[*Anthus*] *rufogularis* LICHTENSTEIN, Nom. Av. Mus. Berol., 1854, 38.

Anthus pratensis rufogularis SCHLEGEL, Rev. Crit., 1844, p. xxxvi.—GOULD, Proc. Zool. Soc. Lond., 1859, 151.—BLYTH, Ibis, 1867, 31.

Anthus cervinus, var. *rufogularis* SYEVERTSOV, Turkest. Jevotn., 1873, 67, 140.

Anthus pratensis (not *Alauda pratensis* Linnæus) NAUMANN, Vög. Deutschl., iii, 774, part, 1823, pl. 85, fig. 1 (supposed summer plumage).—EVERSMANN, Add. Pallas's Zoogr. Rosso-Asiat., 1835, 15.—COUES, Check List, 1873, 125, no. 55 bis. (St. Michael, Alaska).—BAIRD, BREWER and RIDGWAY, Hist. N. Am. Birds, i, 1874, 173, part (St. Michael).—NELSON, Cruise "Corwin," 1881 (1883), 62 (St. Michael).

^a Collected by Messrs. Dall and Bannister, of the Russian American Telegraph Survey, in 1867, but the exact date not recorded. The specimen is in the collection of the United States National Museum.

- Anthus rufosuperciliaris* BLYTH, Journ. Asiat. Soc. Bengal, 1860, 105 (Pegu).
Anthus thermophilus SWINHOE, Ibis, 1860, 55, 429 (Amoy, China); 1861, 36, 411.
Anthus japonicus (not *Anthus pratensis japonicus* Temminck and Schlegel) SWINHOE, Ibis, 1861, 333 (n. China); 1863, 443 (n. Japan).
Anthus ruficollis "Vieill." LESSON, Traité d'Orn., 1831, 424.—HEUGLIN, Orn. N. O.-Afr., i, 1869, 323.
 (?) *Anthus pelopus* HODGSON, in Gray's Zool. Misc., 1844, 83.

ANTHUS PRATENSIS (Linnæus).

MEADOW PIPIT.

Adults (sexes alike^a).—Above clear, somewhat buffy, olive, conspicuously streaked, except on rump and upper tail-coverts, with black or dusky, the streaks broadest on back; upper tail-coverts indistinctly darker medially; wings and tail dusky grayish brown, with pale olive edgings, the middle and greater wing-coverts broadly margined at tips with still paler olive or pale olive-buffy, the tertials edged terminally with the same; outermost rectrix with most of its outer web and much of the inner web dull white, on the inner web extending next to shaft halfway or more toward base, but for only a short distance along the edge; inner web of second rectrix with a white terminal spot; an indistinct superciliary stripe of pale yellowish olive or olive-yellowish, more or less streaked with darker; a broad malar stripe and entire under parts pale brownish buffy or dull buffy whitish, the throat sometimes (in spring examples) more pronouncedly buff or cinnamon-buff; chest, sides, and flanks conspicuously streaked with black or dusky, the throat bordered along each side by a submalar series of black or dusky streaks; maxilla dark brown or blackish, becoming pale brown on tomia; mandible pale brownish, usually dusky terminally; iris brown; legs and feet pale brownish (in dried skins).

Young in first autumn and winter.—Similar to adults, but more brownish or ochreous olive above, with dusky streaks less distinct, and under parts more strongly buffy, especially on sides and flanks, with the dusky streaks less sharply defined.

Young in first plumage.—Similar to adults, but ground color of upper parts paler and grayer; under parts dull grayish white or pale buffy yellowish, with dusky streaks less sharply defined.

Adult male.—Length (skins), 145–155 (152.4); wing, 78–82 (80); tail, 56–63 (59.4); exposed culmen, 12; tarsus, 21; middle toe, 15; hind claw, 10–12 (10.8).^b

^aI am unable to detect, in a large series of specimens, any decided or constant difference in coloration according to season. In the more freshly assumed plumage of autumn the general color of the upper parts is of a rather more decided olive hue, and that of the under parts more decided buffy than in most spring examples; but a considerable number of the latter are as strongly colored as any autumn or winter examples, while one taken in December is in no respect distinguishable from others taken in April.

^bSeven specimens.

Adult female.—Length (skins), 141–154 (148.4); wing, 72–79 (75.4); tail, 52–58 (55.2); exposed culmen, 11–13 (12); tarsus, 21; middle toe, 15; hind claw, 11–12 (11.2).^a

Western division of the Palæarctic Region, breeding over the greater part of Europe (in Spain, Italy, Greece, Asia Minor, and Palestine, only on higher mountains), migrating southward in winter to northern Africa. Accidental in Greenland (one specimen, taken in 1845).

[*Alauda*] *pratensis* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 166 (based on *The Tullark* Albin, Nat. Hist. Birds, i, 41, pl. 43, etc.); ed. 12, i, 1766, 287.—GMELIN, Syst. Nat., i, 1788, 792.

Alauda pratensis FORSTER, Cat. Brit. Birds, 1817, 76.

Anthus pratensis BECHSTEIN, Gem. Naturg. Deutschl., iii, 1807, 732.—TEMMINCK, Man. d'Orn., i, 1820, 269.—NAUMANN, Vög. Deutschl., iii, 1823, 774, part.—WERNER, Atlas, Insectivores, 1827, pl. 80.—GOULD, Birds Europe, ii, 1837, pl. 136; Birds Gt. Brit., iii, 1870, pl. 13.—MACGILLIVRAY, Hist. Brit. Birds, ii, 1839, 181.—KEYSERLING and BLASIUS, Wirb. Eur., 1840, 172.—SELYS-LONGCHAMPS, Faun. Belg., 1842, 87.—YARRELL, Hist. Brit. Birds, i, 1843, 389.—HEWITSON, Eggs Brit. Birds, i, 1846, 133, pl. 36, fig. 1.—PAULSEN, ed. Holboll's Fauna Grön., 1846, 24.—WOLLEY, Jardine's Contr. Orn., 1850, 108 (Farøe Islands, breeding).—GRAY, List Brit. Birds, 1863, 69.—NEWTON, in Baring Gould's Iceland, 1863; ed. Yarrell's Hist. Brit. Birds, i, 1874, 575.—KJÆRBOLLING, Orn. Dan., 1852, pl. 17, fig. 3.—ZANDER, Journ. für Orn., 1853, Extrah., i, 60 (monogr.).—SCHLEGEL, Vog. Nederl., 1854, pl. 96; Dier. Nederl., Vog., 1861, pl. 9, fig. 5.—SUNDEVALL, Svensk. Fogl., 1856, pl. 8, fig. 7.—LINDERMAYER, Vög. Griechenl., 1860, 77.—REINHARDT, Ibis, 1861, 6 (Greenland, 1 spec., 1845).—BAIRD, Review Am. Birds, 1864, 155 (Greenland).—DEGLAND and GERBE, Orn. Eur., i, 1867, 367.—LOCHE, Exped. Sci. Algér., Ois., ii, 1867, 16.—HEUGLIN, Orn. N. O.-Afr., 1869, 323.—FRITSCH, Vög. Eur., 1870, pl. 16, fig. 7.—SALVADORI, Faun. Ital. Ucc., 1871, 125.—SHELLEY, Birds Egypt, 1872, 131.—HARTING, Handb. Brit. Birds, 1872, 24.—DRESSER, Birds Europe, iii, 1874, 285, pl. 132, fig. 1.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 173, part, pl. 10, fig. 4.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 72.—COUES, Check List, 2d ed., 1882, no. 88.—BRITISH ORNITHOLOGISTS' UNION, List Brit. Birds, 1883, 32.—RADDE, Orn. Caucas., 1884, 217.—TRISTRAM, Fauna and Flora Palestine, 1884, 55.—SHARPE, Cat. Birds, Brit. Mus., x, 1885, 580.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 698.

A[ntus] *pratensis* GRAY, Gen. Birds, i, 1847, 206.—CABANIS, Mus. Hein., i, 1850, 14.—COUES, Key N. Am. Birds, 2d ed., 1884, 285.—RIDGWAY, Man. N. Am. Birds, 1887, 536.

[*Anthus*] *pratensis* BONAPARTE, Cousp. Av., i, 1850, 248.—GRAY, Hand-list, i, 1869, 251, no. 3645.

Spipola pratensis LEACH, Cat. Mamm., etc., Brit. Mus., 1816, 21.—BOUCARD, Cat. Av., 1876, 211, no. 6523.

Leimoniptera pratensis KAUP, Naturl. Syst., 1829, 39.

Parus ignotus BRÜNNICH, Orn. Bor., 1764, 73 (see Strickland, Jardine's Contr. Orn., 1852, 44, 45).—GMELIN, Syst. Nat., i, 1788, 1006.

Anthus sepiarius VIEILLLOT, Nouv. Dict. d'Hist. Nat., xxvi, 1818, 486 (based on *Alauda sepiaria* Brisson; *Le Cujelier* Daubenton Pl. Enl., pl. 660, fig. 2).—ROUX, Orn. Prov., 1825, pl. 188.

^aSeven specimens.

- Anthus palustris* BREHM, Lehrb., 1823, 244; Vög. Deutschl., 1831, 334.
Anthus stagnatilis BREHM, Vög. Deutschl., 1831.
Anthus danicus BREHM, Vög. Deutschl., 1831.
Anthus pratensis BREHM, Vög. Deutschl., 1831.
Anthus alticeps BREHM, Vög. Deutschl., 1831.
Anthus tenuirostris BREHM, Vög. Deutschl., 1831.
Anthus musicus BREHM, Vög. Deutschl., 1831.
Anthus virens BREHM, Vög. Deutschl., 1831.
Anthus lichtensteini BREHM, Vög. Deutschl., 1831.
Anthus desertorum BREHM, Vög. Deutschl., 1831.
Anthus montanellus BREHM, Vög. Deutschl., 1831.
Anthus tristis BAILLY, Mém. Soc. d'Emul. Abbeville, 1833, 14.
Anthus communis BLYTH, ed. White's Nat. Hist. Selbourne, 1850, 261.
Anthus intermedius SYEVERTSOV, Ibis, 1876, 173.

ANTHUS SPRAGUEII (Audubon).

SPRAGUE'S PIPIT.

Adults (sexes alike) in spring.^a—Above pale buffy grayish brown broadly streaked with dusky, the streaks broadest on back, narrowest on hindneck; wings and tail dusky with pale buffy grayish brown edgings, the middle and greater wing-coverts margined terminally with the same, the outermost primary edged with white; outermost rectrix white, with basal half, or more, of inner portion of inner web dusky grayish; next rectrix with approximately the outer half white, the inner half grayish dusky; sides of head, including superciliary stripe and lores, and entire under parts dull buffy white, becoming more or less pronouncedly brownish buffy on chest, sides and flanks, the chest narrowly streaked with blackish, the sides of breast more broadly but less distinctly streaked with grayish brown; axillars and under wing-coverts white; maxilla dusky brown or brownish black with paler tomia; mandible pale brownish (in dried skins), darker terminally; iris brown; legs and feet pale buffy brown (in dried skins).

Adults and young in autumn and winter.—Similar to the spring plumage, but more pronounced buffy, both above and below, lower throat, chest, breast, sides, and flanks rather deep dull buff, with dusky streaks on chest rather broader and less sharply defined than in spring and summer.

Young, first plumage.—Pileum broadly streaked with black and pale buff, the former predominating; scapulars and interscapulars black edged with buff and conspicuously margined terminally with white; rump similarly marked, but terminal margins to feathers buff instead of white; wings and tail as in adults, but whitish or pale buffy terminal margins to middle and greater wing-coverts broader and more sharply defined; under parts as in adults, but white of chin and throat more strongly contrasted with the pale buff of chest, etc.

^a In summer the colors become paler, with less of a buffy tinge on under parts, the upper parts less buffy, with the paler wing-edgings less distinct.

Adult male.—Length (skins), 140–152 (146.5); wing, 77–84 (81.5); tail, 53–59 (57); exposed culmen, 11.5–13 (12.2); tarsus, 22–24 (22.9); middle toe, 16–16.5 (16.1); hind claw, 11.5–14 (12.6).^a

Adult female.—Length (skins), 148–152 (150); wing, 77–80 (78.5); tail, 52; exposed culmen, 12.5–13 (12.7); tarsus, 22–23 (22.5); middle toe, 17–18 (17.5); hind claw, 12–15.5 (13.7).^b

Interior plains of North America; breeding from eastern Montana (Belt Mountains, Yellowstone River, etc.) and northern North Dakota (Red River Valley, etc.) to Assiniboia and the Saskatchewan district of Manitoba; in winter southward to Texas (Tom Green, Concho, Kendall, and Harris counties, etc.) and southern Louisiana, and through eastern Mexico to Vera Cruz and Puebla; occasional in winter on coast of South Carolina (Mount Pleasant, near Charleston, November).

Aldaia spragueii AUDUBON, Birds, Am., oct. ed., vii, 1843, 335, pl. 486 (Fort Union, North Dakota; coll. U. S. Nat. Mus.).

[*Otocoris*] *sprangeri* (typographical error) BONAPARTE, Consp. Av., i, 1850, 246.

Agrodroma spraguei BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 329.—BONAPARTE, Compt. Rend. xxxviii, 1856, 65.

Neocorys spraguei BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 234; Cat. N. Am. Birds, 1859, no. 166.—COOPER, Orn. Cal., 1870, 80 (Upper Missouri and Saskatchewan).—COUES, Check List, 1873, no. 56; Birds N. W., 1874, 42.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 175, pl. 10, fig. 5.—ALLEN, Proc. Bost. Soc. N. H., xvii, 1874, 50 (Heart R., Fort Rice, Yellowstone R., etc.; habits; song; descr. nest and eggs).—BREWER, Ibis, 1878, 116 (Fort Brown, Texas).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 73.—NEHLING, Bull. Nutt. Orn. Club, vii, 1882, 8 (Harris Co., s. e. Texas, winter).—BROWN (N. C.), Bull. Nutt. Orn. Club, vii, 1882, 35 (Boerne, Kendall Co., w. Texas, Mar. 16 to Apr. 4).—WILLIAMS, Bull. Nutt. Orn. Club, vii, 1882, 62 (Belt Mts., Montana, breeding).

[*Neocorys*] *spraguei* COUES, Key N. Am. Birds, 1872, 91.

Neocorys spragueii SCLATER, Proc. Zool. Soc. Lond., 1857, 5.—BLAKISTON, Ibis, 1862, 4 (Forks of the Saskatchewan, May); 1863, 61 (Fort Carleton, Saskatchewan, lat. 53°; abundant on prairies).—COUES, Check List, 2d ed., 1882, no. 90.—SHARPE, Cat. Birds Brit. Mus., x, 1885, 620 (Papillion, Nebraska, Sept.; Souris R., North Dakota).

[*Neocorys*] *spragueii* COUES, Key N. Am. Birds, 2d ed., 1884, 286.

Anthus (*Neocorys*) *spragueii* COUES, Birds Col. Val., 1878, 193, footnote.—SENNETT, Bull. U. S. Geog. and Geol. Surv. Terr., iv, no. 1, 1878, 10 (Galveston, Texas, Mar.).

Anthus spraguei BAIRD, Review Am. Birds, Oct., 1864, 155.—COUES, Am. Nat., vii, 1873, 697.—SETON, Auk, ii, 1885, 269 (w. Manitoba; habits; song).—WILLIAMS, Auk, v, 1888, 15 (near Grand Falls, Montana; song).—SALVIN and GODMAN, Ibis, 1889, 236 (Vera Cruz, Mexico; Puebla).—THOMPSON, Auk, x, 1893, 50 (Big Plain, Manitoba).

[*Anthus*] *spraguei* GRAY, Hand-list, i, 1869, 250, no. 3634.

Anthus spragueii AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 700.—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 136 (Puebla, Mexico, Dec.).—SETON, Auk, iii, 1886, 327 (Assiniboine distr., w. Manitoba, sum-

^a Four specimens.

^b Two specimens.

mer res.).—THORNE, Auk, iv, 1887, 265 (Fort Lyon, Colorado).—LLOYD, Auk, iv, 1887, 297 (Tom Green Co., Texas, 1 spec., Jan.; Concho Co., flock, Oct. 15).—COOKE, Bird Migr. Miss. Val., 1888, 264 (Mississippi Valley and Texan range).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1890, 625 (Manitoba, common summer res.; habits; song).—WAYNE, Auk, xi, 1894, 80 (near Mount Pleasant, South Carolina, Nov. 24, 1893; 1 spec.); xviii, 1901, 275 (same locality, Nov. 17, 1900).—KOHN, Auk, xi, 1894, 181 (Averys Island, Louisiana, Jan. 20, 1894).—ALLISON, Auk, xvi, 1899, 82 (near New Orleans, Louisiana, Nov. 24, 1898; 5 specs.).—BEYER, Proc. Louis. Soc. Nat., 1897-99 (1900), 116 (s. Louisiana, Oct. to Apr.).

*A[*nthus*] spragueii* RIDGWAY, Man. N. Am. Birds, 1887, 537.

ANTHUS PARVUS^a Lawrence.

PANAMA PIPIT.

Adults (sexes alike).—Prevailing color of upper parts dusky, broken on pileum and hindneck by streaks of wood brown or brownish buff, these broad and very distinct in fresh plumage, narrower, sometimes obsolete in worn plumage; scapulars and interscapulars edged, more or less distinctly, with wood brown or isabella color, producing a more or less distinctly streaked appearance; rump nearly uniform isabella or raw-umber brown, the upper tail-coverts similar, but with a broad median streak of dusky; tail dull black, the middle pair of rectrices margined with light brown, the outermost rectrix mostly dull white or brownish white (the outer web becoming pale grayish brown terminally), the second rectrix similar, but with a stripe of dusky along edge of inner web; all the wing-feathers margined or edged with pale brown or brownish buffy, the edges of remiges inclining to pale brownish gray, the outermost primary with outer web white; under parts buffy whitish or dull yellowish white, more or less strongly washed with brown on chest, sides, and flanks, where streaked with deep brown or dusky; orbital ring and malar stripe buffy white or

^aI find it very difficult to decide what name this species should bear. *Alauda rufa* should be at once cast aside as being unquestionably not this species, the colored figures in the *Planches Enluminées*, upon which it is based, almost certainly representing a young *Otocoris*. The next name in order of date, *Alauda bonariensis* Bonnaterre and Vieillot, has the same basis. The next, *Anthus lutescens* Pucheran, Arch. Mus. Paris, vii, 1855, 343, ex Lesson, *Traité d'Orn*, 1831, 424 (the latter a *nomen nudum*), can not be this species according to the description. This brings us down to *Anthus parvus* Lawrence (1862), based on the Panama bird, the type being now before me, which name seems to be the first without question bestowed on the species.

Anthus parvus is clearly divisible into several geographic forms, in different parts of South America, none of the numerous specimens which I have seen from south of the Isthmus of Panama being identical with Panama examples, all being larger and otherwise different. I shall not, however, in the present connection at least, further consider these South American subspecies, except to observe that the birds from Peru (*Anthus peruvianus* Nicholson, Proc. Zool. Soc. Lond., 1878, 390) is certainly different from the Brazilian and Guiana forms, respectively.

dull yellowish white, the auricular region pale brownish, indistinctly streaked with paler; maxilla dark brown or brownish black; mandible pale brownish basally, dark brown terminally; legs and feet pale yellowish brown or buffy (in dried skins).

Young, first plumage.—Upper parts rather spotted than streaked, the feathers being narrowly margined at tips with pale brown; under parts brownish white or pale brownish buff, broadly streaked on chest, narrowly and rather indistinctly streaked on side, with dusky.

Adult male.—Length (skins), 110–115 (111.5); wing, 56–61 (59.2); tail, 41–44 (43.2); exposed culmen, 10–11 (10.5); tarsus, 18–20 (19.2); middle toe, 12–14 (13.3) hind claw, 9.5–13.5 (10.7).^a

Adult female.—Length (skin), 110; wing, 60; tail, 42; exposed culmen, 10; tarsus, 19.5; middle toe, 13.5; hind claw, 8.^b

Isthmus of Panama (Panama City), Chiriqui (Divala), and Veragua (Santa Fe).

Anthus rufus (not *Alauda rufa* Gmelin) LAWRENCE, Ann. Lyc. N. Y., vii, 1862, 322 (Panama R. R.).—BAIRD, Review Am. Birds, 1864, 156 (Panama R. R.).—SCLATER, Ibis, 1878, 360, part (crit.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 108, part (Panama; Veragua).—SHARPE, Cat. Birds Brit. Mus., x, 1885, 606, part (Panama; Santa Fe, Veragua).

[*Anthus*] *rufus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 8, part.

Anthus (*Notiocorys*) *parvus* LAWRENCE, Proc. Acad. Nat. Sci. Phila., xvii, June, 1865, 106, 107 (Panama City, Isthmus of Panama; coll. G. N. Lawrence).

Anthus parvus SALVIN, Proc. Zool. Soc. Lond., 1867, 135 (Santa Fe, Veragua; crit.).

Anthus rufus parvus BANGS, Auk, xviii, Oct., 1901, 368 (Divala, Chiriqui).

Family HIRUNDINIDÆ.

THE SWALLOWS.

Long-winged, fissirostral, “nine-primaried” acutiplantar Oscines with the longest primaries more than twice as long as longest secondaries; the bill triangular in vertical profile, with exposed culmen not longer (usually shorter) than distance from nostril to eye; the feet small and weak (tarsus not longer than middle toe with claw, usually shorter), and with the dorsal pteryla forked on the lower back.

Bill small, triangular in vertical profile, depressed, “fissirostral,” with tip of maxilla distinctly but minutely uncinat, maxillary tomium distinctly notched subterminally, the gape deeply cleft (commissure more than twice as long as exposed culmen) but not extending beyond anterior angle of eye. Nostrils variable but usually longitudinally ovate, opening laterally, and overhung by a distinct membranous operculum; frequently roundish, opening vertically, with little if any membrane along inner edge, rarely bordered above by feathering of the frontal antie. Rictal bristles few, short, and inconspicuous, fre-

^a Six specimens.

^b One specimen, sex doubtful.

quently obsolete. Wings very long and pointed, reaching when closed to or beyond the end of the tail (or else the latter deeply forked with lateral rectrices much elongated); obvious primaries nine (the tenth very minute and wholly concealed), the longest (ninth or eighth and ninth) more than twice as long as longest secondaries; primaries with edges never sinuated; innermost secondaries ("tertials") never elongated. Tail composed of twelve rectrices, more or less emarginated or forked (never rounded nor graduated), never longer than wing (usually much shorter), the lateral pair of rectrices sometimes attenuated and much elongated. Feet small; tarsus never longer than middle toe with claw (usually shorter), more or less distinctly scutellate^a (or else, rarely, feathered);^b lateral toes about equal, their claws usually reaching about to or falling slightly short of base of middle claw, rarely (in genus *Clivicola*) extending decidedly beyond or falling decidedly short (in genus *Tachycineta*); basal phalanx of middle toe adherent to both lateral toes for a portion of its length, more so to the outer toe, which is sometimes united for the whole of the basal phalanx or (more rarely) for a considerable part of the second (subbasal) phalanx; toes with the usual (Passerine) number of phalanges (1, 2, 3, and 4, respectively, exclusive of the ungual phalanges).

Plumage compact, usually lustrous or semimetallic, at least on upper parts, but sometimes dull-colored throughout. The single annual molt takes place, usually at least, in autumn or winter.^c

Range.—Cosmopolitan.

The swallows constitute perhaps the best-defined group among oscine birds, and are characterized by their very short, flat, triangular bill, wide gape, extremely long wings, and short tarsi and weak feet (fitted only for perching). They are eminently aerial and insectivorous,^d feeding on the wing, in all these respects closely resembling the Swifts (Family Micropodidæ), from which, however, they differ greatly in structural characters.

The family is cosmopolitan, though most numerous represented

^aThe precise character of scutellation of tarsus is somewhat difficult to make out, owing to a tendency to fusion of the plates, although not essentially different from most Oscines. There is a series of scutellæ along the anterior face of the tarsus, and a longitudinal plate on each side, meeting, but not coalescing, behind. The anterior scutellæ sometimes appear to fuse into the outer lateral plate; or sometimes the latter is more or less subdivided; the inner plate is generally more distinct from the anterior scutellæ, and usually entire, except perhaps at the lower extremity. (Baird, *Review Am. Birds*, pp. 267, 268.)

^bIn one genus (*Chelidonaria* Reichenow) both tarsi and toes are feathered.

^cSee Sharpe and Wyatt, *Monograph of the Hirundinidæ*, i, xi, and Allen, *Auk*, xii, 374, 375.

^dAlthough mainly insectivorous, the swallows are not entirely so, some species feeding on berries of various sorts when their favorite insect food temporarily fails them owing to sudden or unseasonable changes of weather.

in warmer countries. In the latest special treatise on the family^a one hundred and nine species, belonging to twelve genera, are recognized, of which thirty-one species and six genera^b are American—all but one of the former and two of the latter being peculiar to the Western Hemisphere.

The number of American genera of Hirundinidæ is a question very difficult to determine. As already stated, the most recent authority allows but six—*Progne*, *Petrochelidon*, *Atticora*, *Stelgidopteryx*, *Clivicola*, and *Hirundo*—and these are the genera which are generally accepted. The second, fifth, and sixth of these are cosmopolitan in range; the first, third, and fourth being peculiar to America. It is chiefly with respect to the first, third, and sixth that the question of generic homogeneity is concerned; and I am convinced that each of these should be subdivided if we are to have generic groups which are naturally circumscribed. Certainly *Atticora*, as usually understood, is a most heterogeneous group, and cannot be defined by any character or combination of characters, while most of the eight or nine species composing the artificial group in question differ from one another so much in details of form that they may easily be segregated into seven lesser groups (mostly monotypic), each of which differs from any other in structural characters quite as tangible as those which distinguish other recognized genera. On the other hand, if left together, the group thus formed has nothing to hold it together, the species having little in common beyond the roundish vertical nostrils (shared also by *Progne*, *Phæoprogne*, *Petrochelidon*, and *Stelgidopteryx*^c) and the relatively long tarsus.

The other group concerned is that included by Sharpe and others in *Hirundo*. This genus, properly restricted, is, in the main, an exceedingly natural one, though its limits as to Old World species (many of which I have not been able to examine) are uncertain; but there is no question in my mind that the purely American types, comprising species which, while differing much among themselves in details of external structure, are all different in this respect as well as style of coloration from all Old World species of *Hirundo*, should be removed from that genus.

^a A Monograph | of the | Hirundinidæ | or | Family of Swallows. | By R. Bowdler Sharpe, LL. D., F. L. S., F. Z. S., Etc., | . . . [= 6 lines of additional titles] | and | Claude W. Wyatt, | Member of the British Ornithologists' Union. | —Volume I [-II] | — | London: | Henry Sotheran & Co., | 37 Piccadilly, W. | 140 Strand, W. C. | 1885-1894. 2 vols. 4to, Vol. I, pp. i-lxx + 1-356, pll. i-liv; Vol. II, pp. i-viii + 357-673, pll. lv-cxxix.

^b Both genera and species are, however, given wider limits by Sharpe and Wyatt than the facts seem to warrant.

^c In this connection it should be remembered that the roughened edge of the outermost primary, so distinctive of adult males of *Stelgidopteryx*, often does not exist in adult females.

In short, while the number of genera allowed in the following pages may seem excessive, to my mind it expresses far better than does a more limited number the true relationships within the family.

KEY TO THE GENERA OF HIRUNDINIDÆ.

- a. Nostrils opening superiorly, broad, roundish, without distinct, if any, inner operculum.
- b. Larger (wing not less than 123 mm., usually much more); bill stouter, less depressed, the culmen strongly decurved, at least terminally.
- c. Inner side of tarsus with less than upper half feathered; tail equal to or longer than distance from bend of wing to tip of longest secondaries, the lateral rectrices distinctly narrowed terminally; culmen more strongly curved, and bill thicker; upper parts (at least in part) glossy blue-black, the under parts also glossy blue-black in adult males of some species. (Sexes more or less different in color.).....*Progne* (p. 28)
- cc. Inner side of tarsus with more than upper half feathered; tail shorter than distance from bend of wing to tip of longest secondaries, the lateral rectrices not distinctly narrowed terminally; culmen straight to near tip, the bill more depressed; upper parts dull brownish gray; under parts white with brownish gray across chest and along sides, the center of breast with brownish gray spots. (Sexes alike.).....*Phæoprogne* (extralimital)^a
- bb. Smaller (wing not more than 118 mm., usually much less); bill weaker, much depressed, with culmen straight to near tip.
- c. Subbasal phalanx of middle toe entirely free from outer toe.
- d. Basal phalanx of middle toe not entirely adherent to outer toe.
- e. Tarsus decidedly shorter than middle toe with claw (scarcely, if at all, longer than middle toe without claw); back streaked with white or grayish; rump cinnamon or chestnut.....*Petrochelidon* (p. 44)
- ee. Tarsus nearly as long as middle toe with claw, or at least decidedly longer than middle toe without claw; back not streaked; rump not cinnamon or chestnut.
- f. Tail much more than half as long as wing, forked for nearly one-fourth its length, the lateral rectrices distinctly narrowed terminally, with tip obtusely pointed; wing-tip decidedly longer than distance from bend of wing to end of longest secondaries; above glossy blue-black or dark steel blue, beneath white with blue-black under tail coverts.
Pygochelidon (p. 68)
- ff. Tail less than half as long as wing, slightly emarginate, all the rectrices broad and rounded at tip; wing-tip little if any longer than distance from bend of wing to end of longest secondaries; above dull grayish brown with a tawny or rusty bar across nape and on sides of head; beneath white, becoming cinnamonaceous on throat.

Alopocheilidon (extralimital)^b

^a *Phæoprogne* Baird, Review Am. Birds, May, 1865, 272, 283. (Type, *Hirundo fusca* Vieillot.) (South American; two species, which are remarkably similar in coloration to *Riparia riparia*.)

^b *Alopocheilidon*, new genus. (Type, *Hirundo fucata* Temminck.) This genus comes very close to *Stelgidopteryx*, but differs in less extent of adhesion of toes, and in the entire absence, apparently, of recurved tips to the barbs of outer web of outermost primary, the latter being wanting in the young, and often in adult females, of *Stelgidopteryx*. The coloration is quite the same, except that *Alopocheilidon* has the head largely tawny or rusty. The genus is monotypic and confined to the South Brazilian region of South America. (ἄλωπος, fox-colored; χελιδών, a swallow.)

dd. Basal phalanx of middle toe entirely adherent to outer toe.

- e. Tibio-tarsal joint entirely hidden by tibial feathers; edge of outermost primary roughened by recurved tips to the barbs (except in young and some females); upper parts dull grayish brown (sometimes dull whitish on rump); under parts neither uniform sooty gray nor partly black.^a

Stelgidopteryx (p. 56)

- ee. Tibio-tarsal joint exposed; edge of outer primary normal (not roughened); upper parts never entirely grayish brown nor with whitish on rump; under parts sooty gray or brown, or with more or less of black.

f. Tail much less than two-thirds as long as wing, forked for less than one-fourth its length (sometimes nearly even), the lateral rectrices broad; nasal fosse occupying at least basal half of maxilla; under parts sooty gray, becoming black on under tail-coverts or dull white, becoming sooty gray on throat.....**Orochelidon** (extralimital)^b

ff. Tail more than three-fourths as long as wing, forked for half its length, the lateral rectrices narrow and attenuate; nasal fosse very small, occupying much less than basal half of maxilla; under parts pure white, with under tail-coverts and band across chest glossy blue-black.....**Diplochelidon** (extralimital)^c

- cc. Subbasal phalanx of middle toe adherent for basal half to outer toe (the basal phalanx of course entirely adherent).

d. Basal phalanx of middle toe with only the basal half adherent to inner toe; tibial feathers short, not covering tibio-tarsal joint, not white; back grayish brown; under parts of body largely white..**Notiochelidon** (p. 65)

dd. Basal phalanx of middle toe adherent for most of its length to inner toe; tibial feathers full, covering tibio-tarsal joint, white, forming a conspicuous tuft; back not grayish brown or else under parts of body without any white.

- e. Tail about half as long as wing, forked for less than one-fourth its length; hallux much shorter than inner toe; wing-tip much shorter than distance from bend of wing to tip of longest secondaries; above sooty blackish becoming grayish brown or sooty gray on rump; beneath sooty brown.....**Neochelidon** (p. 67)

ee. Tail at least two-thirds as long as wing, forked for nearly half its length; wing-tip equal to or longer than distance from bend of wing to tip of longest secondaries; hallux as long as inner toe; uniform glossy blue-black with a broad white band across lower breast.

Atticora (extralimital).^d

- aa. Nostrils opening laterally, in lower portion of nasal fossæ, narrow, longitudinal, overhung by a broad membraneous operculum (this sometimes entirely covered by feathers).

^a Except, sometimes, a blackish spot or longer under tail-coverts.

^b **Orochelidon**, new genus. (Type, *Petrochelidon murina* Cassin, = *Hirundo cinerea* Gmelin?) There is considerable difference in form between *O. murina* (*cinerea*?) and *O. andicola*, the latter having a nearly even instead of deeply emarginate or forked tail and much less depressed bill. (Andean region of Ecuador, Peru, and Bolivia; two species.) (^γ*Opos*, a mountain; ^χ*ελιδών*, a swallow.)

^c **Diplochelidon**, new genus. (Type, *Hirundo melanoleuca* Maximilian.) (^Δ*πλός*, double; ^χ*ελιδών*, a swallow; with reference to its resemblance to swallows of two different types.) South American (monotypic).

^d **Atticora** Boie, Isis, 1844, 172. (Type, *Hirundo fasciata* Gmelin.) South American (monotypic).

- b. Lower part of tarsus with a tuft of small feathers on inner side; claws larger and sharper, those of lateral toes reaching to or beyond base of middle claw, that of the hallux nearly as long as (sometimes longer than) the digit; above brownish gray; beneath white with a brownish gray band across chest.
- Riparia** (p. 72)
- bb. Lower part of tarsus without any feathers; claws smaller, less acute, those of lateral toes falling decidedly short of base of middle claw, that of hallux much shorter than the digit; upper parts not brownish gray, or else ^a under parts white without grayish band across chest.
- c. Nasal operculum more or less naked and exposed.
- d. Nasal operculum with only the extreme posterior portion feathered, the feathering of frontal antiae scarcely extending to middle of nostril; tail two-thirds as long as wing,^b or more, forked for more than one-third its length,^b the rectrices with a white spot on inner web;^b upper parts with chestnut or rufous on pileum or rump, or both; under parts with more or less of rufous or chestnut, or else white with a black band across chest.
- Hirundo** (p. 76)
- dd. Nasal operculum mostly feathered, the feathering of frontal antiae extending to beyond middle of nostrils; tail less than two-thirds as long as wing (usually much less), forked for less than half its length, the rectrices without white spots on inner webs; upper parts without any chestnut; under parts entirely white, or else with dusky spots on chest and throat or shaded with gray on chest.
- e. Tail less than half as long as wing, forked for less than one-fourth its length, the lateral rectrices not narrower than the rest, not attenuate; tarsus little, if any, longer than middle toe without claw; tibial feathers longer, completely covering tibio-tarsal joint.
- f. Lateral toes longer and stronger, their claws reaching very nearly to base of middle claw; wing very little more than twice as long as tail; upper parts glossy steel blue or green or glossy dark blue, the rump sometimes white.....**Iridoprocne** (p. 85)
- ff. Lateral toes smaller and weaker, with claws falling very decidedly short of base of middle claw; wing two and a half times as long as tail; upper parts opaque green, bronzy, and violet.**Tachycineta** (p. 92)
- ee. Tail more than half as long as wing, forked for more than one-third its length, the lateral rectrices narrower than the others, decidedly attenuate; tarsus decidedly longer than middle toe without claw; tibial feathers shorter, not entirely covering tibio-tarsal joint. (Upper parts opaque greenish, the plumage structurally similar to that of *Tachycineta*.)
- Callichelidon** (p. 98)
- cc. Nasal operculum entirely feathered, the feathering of frontal antiae extending to anterior end of nasal fossae and partly covering nostrils. (Plumage of upper parts brilliantly metallic bronzy green or coppery.)
- Lamprochelidon** (p. 100)

Genus PROGNE Boie.

Progne BOIE, Isis, 1826, 971. (Type, *Hirundo purpurea* Linnæus, = *H. subis* Linnæus.)

Procne (emendation) DES MURS, in Chenu's Encycl. d'Hist. Nat. Ois., ii, 1854, 229.

^a In young of *Tachycineta*, *Iridoprocne*, and *Callichelidon*.

^b Except in some Old World species, to which, however, the other color-characters given do apply. Possibly some of these aberrant species may not be really congeneric.

Very large Hirundinidæ (wing 115 mm. or more, usually more than 130) with stout bill, tarsus shorter than middle toe (without claw), only the upper part of tarsus feathered on the inner side, tail longer than distance from bend of wing to tip of longest secondaries, the lateral rectrices tapering terminally and obtusely pointed at tips, the adult males uniform glossy blue-black or violaceous steel blue above (sometimes underneath also).

Culmen strongly curved almost from the base, the tip distinctly though not abruptly uncinate; maxillary tomium distinctly notched subterminally, distinctly concave for anterior half and convex posteriorly, the edge of the maxilla, from nostril to rictus, conspicuously expanded laterally; gonys slightly convex or nearly straight. Nostrils roundish, opening superiorly, in anterior end of nasal fossæ, without obvious superior operculum, posteriorly in contact with feathering of frontal antiæ. Rictal bristles short and inconspicuous, scarcely projecting beyond expanded edge of maxilla. Tail about half as long as wing (longer than distance from bend of wing to tip of longest secondaries), forked for not more than one-third its length (usually less), the lateral rectrices tapering terminally and obtusely pointed at tip. Tarsus shorter than middle toe without claw but decidedly longer than exposed culmen, its extreme upper portion feathered except the posterior edge; claws of lateral toes not reaching to base of middle claw.

Coloration.—Adult males uniform glossy blue-black above, some species entirely of this color, but others with under parts partly white, the throat, chest, and sides being either glossy blue-black, like upper parts, or brownish gray.

Nidification.—Nest in holes of trees or buildings, composed of fine grasses, feathers, etc.; eggs immaculate white.

Range.—The whole of temperate and tropical America, including West Indies and Galapagos Archipelago. (Six species.)

KEY TO THE SPECIES AND SUBSPECIES OF PROGNE.

- a. Under parts entirely dark steel blue like upper parts.
- b. Wing 138 mm. or more; a concealed white patch on sides of lower back.
- c. A concealed white patch on outer margin of sides, immediately below the one on sides of lower back; tail forked for less than 25 mm. (usually for much less.)
- d. Feathers of lower abdomen without concealed broad white bars (if with any concealed white, this in form of small spots or narrow bars); tail relatively shorter and less deeply forked, with lateral rectrices relatively broader and less pointed. (*Progne subis*.)
- e. Averaging larger, with less deeply forked tail.^a (Temperate North America, except Pacific coast district, including northern, central, and western Mexico; parts of South America in winter.)
- ee. Averaging smaller, with more deeply forked tail. (Pacific coast district, from Cape St. Lucas to British Columbia.)

Progne subis subis, adult male (p. 31)

Progne subis hesperia, adult male (p. 35)

^a Adult males of the geographic races of *P. subis* are often undistinguishable, only the adult females and young differing constantly.

- dd. Feathers of lower abdomen with a concealed very broad bar or band of white; tail relatively longer and more deeply forked, with lateral rectrices relatively narrower and more pointed. (Cuba; accidental or occasional in southern Florida.) *Progne cryptoleuca*, adult male (p. 37)
- cc. No concealed white patch on outer margin of sides; tail forked for more than 25 mm. (Chile, Argentina, and Paraguay.)
Progne furcata, adult male (extralimital^a)
- bb. Wing not more than 130 mm. (usually much less); no concealed white patch on sides of lower back. (Galapagos Archipelago.)
Progne modesta, adult male (p. 43)
- aa. Under parts not entirely steel blue.
- b. Under parts dark steel blue anteriorly and laterally, the abdomen and under tail-coverts pure white.
- c. Larger (adult male averaging wing 143.5, tail 74.2, exposed culmen 11.2, width of bill at frontal antiae 9.4, tarsus 14.1, middle toe 15). (Jamaica, Porto Rico, and Haiti; Lesser Antilles.)
Progne dominicensis, adult male (p. 38)
- cc. Smaller (adult male averaging wing 136.7, tail 69.5, exposed culmen 10.1, width of bill at frontal antiae, 8.4; tarsus, 13.2; middle toe, 14). (Western Mexico.) *Progne sinaloa*, adult male (p. 40)
- bb. Under parts without any steel blue, or else with the chin and throat sooty gray.
- c. Under parts partly white (at least the abdomen white or mixed with whitish and much paler than chest.
- d. A more or less distinct hoary space on sides of neck, often united across hindneck and forming a more or less distinct collar. (*Progne subis*, adult female and young.)
- e. Darker, the under parts sometimes without any white except on lower abdomen and margins of under tail-coverts; forehead less distinctly and less extensively hoary, sometimes glossy blue-black, like rest of upper parts... *Progne subis subis*, adult female and young (pp. 31, 32)
- ee. Paler, the under parts always extensively white, the forehead more distinctly and extensively hoary.
Progne subis hesperia, adult female and young (p. 35)
- dd. No hoary space on sides of neck, which are dark sooty gray; no trace of collar across hindneck.
- e. Larger (averaging wing 140, tail 68 or more, tarsus 14.4 or more), with tail more deeply forked (depth of fork averaging 17.5 or more); sooty gray of chest and sides deeper and more uniform, more strongly contrasted with white of abdomen.
Progne cryptoleuca, adult female and young (p. 37)^a
Progne dominicensis, adult female and young (p. 38)^b
- ee. Smaller (averaging wing 133.3, tail 64.1, tarsus 13.6), with tail less deeply forked (depth of fork averaging 12.7 c); sooty gray of chest and sides

^a *Progne furcata* Baird, Review Am. Birds, May, 1865, 278 (Chile; coll. U. S. Nat. Mus.); Sharpe, Cat. Birds Brit. Mus., x, 1885, 175; Sharpe and Wyatt, Mon. Hirund., 1894, 459, 487, pl. 89.—*Progne elegans* Baird, Review Am. Birds, May, 1865, 275, part (except adult male only, which = *P. subis subis*; Vermejo R., Paraguay; coll. U. S. Nat. Mus.).

^b I am unable to give characters for distinguishing females and young of these two species.

^c These average measurements are of the adult female only; immature males, which are not different in plumage from adult females, average larger. The measurements

paler, the former more broken by paler tips to the feathers, less strongly contrasted with white of abdomen.

Progne chalybea, adult male and female and young (pp. 40, 41)^a

cc. Under parts entirely sooty brown (except, sometimes, for whitish, but not pure white, margins to feathers.

d. Wing more than 130; feathers of under parts broadly margined with paler.

Progne furcata, adult female and young.

dd. Wing less than 130 (usually less than 125); feathers of under parts with very indistinct, if any, paler margins.

Progne modesta, adult female and young (p. 43)

PROGNE SUBIS SUBIS (Linnaeus).

PURPLE MARTIN.

Adult male.—Uniform glossy violaceous steel blue (the feathers dark sooty gray beneath the surface, becoming black next to the steel blue or violaceous tip); lesser and middle wing-coverts glossy dark violaceous steel blue, the feathers darker centrally; rest of wings, and tail, dull black, or sooty black; a concealed tuft of white feathers on sides of lower back and opposite to this another on upper margin of sides; bill black; iris brown; legs and feet dark brown or brownish black; length (skins), 170–204 (184.5); wing, 139–153 (146.3); tail, 68.5–78 (73.9); exposed culmen, 10.5–12.5 (11.6); width of bill at frontal antiæ, 7.5–9 (8.5); tarsus, 14–16.5 (15.1); middle toe, 15–17 (15.7); depth of fork of tail, 15–21.5 (18.8).^b

Adult female.—Above much duller and less uniform violaceous steel blue than in adult male, the sooty gray of basal portion of feathers more or less exposed; forehead (sometimes forepart of crown also) more or less distinctly and extensively sooty gray, the feathers of the anterior portion of the forehead being grayish with small central, mostly concealed, spots of dusky, those of the posterior portion with the dusky centers larger and the grayish margins narrower; lores and auricular region dusky, the latter glossed with violaceous steel blue; sides of neck light grayish, the hindneck usually crossed by a dull sooty grayish band or collar, these usually indistinct, sometimes obsolete; chin, throat, chest, sides, and flanks sooty gray, the feathers of throat and chest margined with paler, producing a more or less distinctly squamate appearance; breast, abdo-

of adult females of *P. cryptoleuca* and *P. dominicensis* are practically identical, and inosculate with those of *P. chalybea*; therefore, those that are given in the above key are intended only as a sort of clue in identifying specimens.

^a A southern representative, *Progne chalybea domestica*, occurring in southern Brazil, Paraguay, and Argentina, differs chiefly if not only in larger size. (*Hirundo domestica* Vieillot, Nouv. Dict. d'Hist. Nat., xiv, 1817, 520.—*P[rogne] domestica* Gray, Gen. Birds, i, 1845, 59.—*Progne domestica* Baird, Review Am. Birds, 1865, 284, footnote; Sharpe, Cat. Birds Brit. Mus., x, 1885, 177; Sharpe and Wyatt, Mon. Hirund., 1894, 469.—*Progne chalybea domestica* Berlepsch, Journ. für Orn., 1887, 5.)

^b Thirty-six specimens.

men, and under tail-coverts white or pale grayish (sometimes distinctly grayish), usually more or less streaked, narrowly, with dark sooty gray, the under tail-coverts often sooty gray margined with white; axillars and under wing-coverts dark sooty gray, the coverts near edge of wing growing more or less distinctly margined with white; bill, iris, and feet as in adult male; length (skins), 171–201 (182.7); wing, 136–147 (142.3); tail, 68–75 (70.9); exposed culmen, 10–13 (11.7), width of bill at frontal antæ, 8–10 (8.6); tarsus, 14.5–16 (15.1); middle toe, 15–17 (16.1); depth of fork of tail, 14–20 (17.3).^a

Immature male (second year).—Exactly like the adult female in coloration. (Older specimens have admixture of glossy blue-black feathers on the under parts, the black feathers usually appearing first on the throat.)

Immature female (second year).—Similar to the adult female, but upper parts less strongly glossed with steel blue, this confined principally to the posterior half of the pileum and the scapular region, the general color of the upper parts being dark sooty, or grayish brown; feathers of anterior under parts more distinctly margined with whitish, and remaining under parts more decidedly and uniformly white.

^a Twenty-seven specimens.

Specimens from different geographic areas average as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Width of bill at frontal antæ.	Tarsus.	Middle toe.	Depth of fork of tail.
MALES.							
Eight adult males from Virginia to New York	145.6	74.4	11.6	8.4	14.6	15.9	18
Five adult males from Mississippi Valley ..	149.3	75.2	11.7	9	14.9	15.8	19.1
Ten adult males from Florida (mostly, if not all, breeding birds)	144.3	72.9	11.3	8.2	15.1	16.3	18.6
Ten adult males from Arizona	147.6	74.1	11.9	9.7	15.4	16.3	19.1
Two adult males from western Texas	144.5	72.2	12	8.7	15.5	16.5	18
One adult male from Guadalajara, Mexico (breeding)	149.5	75	11.5	9	16	16.5	19
FEMALES.							
Eight adult females from Virginia, Maryland, etc.	142.9	71.9	11.6	8.4	15.3	16	17.3
One adult female from Iowa	142	70	11.5	9	15	17	17
Ten adult females from Florida (mostly breeding)	140.5	70.9	11.6	8.6	15.1	16.2	17.2
Four adult females from Arizona	143.4	70.2	12	8.5	15	16	17.8
One adult female from western Texas	143	71	12	8.5	15	15.5	20
Three adult females from Guanajuato, Mexico (breeding)	145.2	69.8	12	10	14.8	16	16

I am not able to make out any well marked or constant variation coincident with faunal area among specimens from the extensive region indicated by the above table of measurements, although it is barely possible that a more adequate series, composed chiefly of adult females taken at localities where they unquestionably breed,

Young male and female (first year).—Similar to the immature female (in second year) but more uniform in color, the forehead less distinctly or extensively hoary, feathers of back, scapulars, and rump without paler margins, and with the faint gloss greenish blue rather than violet-blue, the throat and chest slightly paler and more uniform, the sooty-gray centers to the feathers being less distinct.

Temperate North America, except Pacific coast district; breeding north to Maine, New Brunswick, Nova Scotia, northwestern Ontario, (Bracebridge, etc.), Manitoba (Pembina River, Turtle Mountain, Big Plain, Portage la Prairie, Lake Manitoba, Saskatchewan, etc.), Montana, and Idaho; breeding southward to southern Florida, southern Texas, and plateau of Mexico (States of Vera Cruz, Guanajuato, Jalisco, etc., and Territory of Tepic); in winter, from southern Florida and Mexico to Venezuela and Brazil. Accidental in Bermudas and in British Islands.

[*Hirundo*] *subis* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 192 (Hudson Bay; based on *Hirundo cerulea canadensis* Edwards, Nat. Hist. Birds, pl. 120).—GMELIN, Syst. Nat., i, 1788, 1021.

Hirundo subis MAYNARD, Birds Florida, 1874, 71.

might show sufficient variation to justify the recognition of two or more geographic subspecies. I am especially sorry that the material before me, including practically all the specimens examined by Dr. Mearns, does not allow me to adopt the recently described subspecies *Progne subis floridanus* Mearns. If all the Florida specimens were like Dr. Mearns's type and another specimen (from the St. Johns River) mentioned by him the Florida birds would constitute an excellent subspecies; but unfortunately in a series of twenty adult females from Florida, the majority undoubtedly being breeding birds, only four answer to his diagnosis, the remaining sixteen being in no respect, that I can discover, different from more northern specimens. What these four dark Florida birds really represent I do not know, but unless they alone of the series examined represent a resident Florida race (a view which their dates of capture and those of other Florida specimens does not favor), they must represent merely individual variation. It is true there are no similar specimens in the series examined from other parts of the United States; but then this series, so far as the Atlantic region is concerned, is very small (only half as large as that from Florida), and I therefore suspect these dark-colored examples may yet be found outside of Florida.

One of three breeding females from Guanajuato, central Mexico, is similar to the dark Florida specimens in the almost entirely sooty gray under parts, the other two having the normal amount of white below. These specimens are in bad condition, being soiled with fatty exudation of the skin, and therefore I am unable to place them satisfactorily, but I think they should be referred to *P. subis subis*.

Arizona specimens and those from western Texas are intermediate between true *P. s. subis* and *P. s. hesperia*, but on the whole rather near the former, to which I at present refer them.

Since the above was written I have examined two adult females from Sing Sing, New York, in the collection of Dr. A. K. Fisher, that are so closely similar in coloration to the type of *P. s. floridanus*, and, with a single exception, so much darker than any others of Dr. Mearns's Florida series, that there is no longer the least doubt in my mind as to the propriety of not recognizing a Florida form of the species.

Cecropis subis LESSON, Compl. Buffon, viii, 1837, 498.

Progne subis^a BAIRD, Review Am. Birds, May, 1865, 274.—COUES, Proc. Ac. Nat. Sci. Phila., 1866, 72 (Fort Whipple, Arizona); Birds Col. Val., 1878, 445; Check List, 2d ed., 1882, no. 165.—SUMICHRIST, Mem. Bost. Soc. N. H., i, 1869, 547 (Orizaba, Vera Cruz).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 329, pl. 16, figs. 7, 10.—RIDGWAY, Bull. Essex Inst., v, 1873, 181 (Colorado); Orn. 40th Parallel, 1877, 439 part (Carson City and Virginia City, Nevada; Wahsatch Mts., Utah); Nom. N. Am. Birds, 1881, no. 152; Orn. Illinois, i, 1889, 204.—ALLEN, Proc. Bost. Soc. N. H., xvii, 1874, 54 (Yellowstone R.).—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 271 (Guadalajara; Tepic, breeding).—HENSHAW, Zool. Exp. W. 100th Merid., 1875, 213 (Camp Apache and Willow Spring, Arizona; western references).—MERRILL, Proc. U. S. Nat. Mus., i, 1878, 125 (Fort Brown, Texas, transient).—NEHRING, Bull. Nutt. Orn. Club, vii, 1882, 11 (s. e. Texas, breeding); Our Native Birds, etc., i, 1893, 336, pl. 18, figs. 2, 3.—BATCHELDER, Bull. Nutt. Orn. Club, vii, 1882, 110 (upper St. John R., Maine and New Brunswick, breeding).—BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 146 (Tucson, Arizona); Proc. Bost. Soc. N. H., xxii, 1883, 372 (Pointe du Chêne, New Brunswick, breeding).—MERRIAM, Auk, ii, 1885, 57 (migration, spring of 1884).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 611.—SETON, Auk, iii, 1886, 324 (Pembina R., Turtle Mt., Big Plain, Portage la Prairie, Lake Manitoba, and along Red R., w. Manitoba; summer resident).—LLOYD, Auk, iv, 1887, 294 (Concho Co., w. Texas, breeding).—SCOTT, Auk, v, 1888, 31 (Tucson, Arizona).—MEARNS, Auk, vii, 1890, 260 (mountains Arizona).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1891, 608 (Manitoba, rare summer resident).—ATTWATER, Auk, ix, 1892, 340 (San Antonio, Texas, breeding).—CARROLL, Auk, xvii, 1900, 346 (Refugio Co., Texas, breeding).—FLEMING, Auk, xviii, 1901, 42 (Bracebridge, etc., n. w. Ontario, breeding).

[*Hirundo purpurea* LINNÆUS, Syst. Nat., ed. 12, i, 1766, 344 (based on *Purple Martin*, *Hirundo purpurea* Catesby, Nat. Hist. Carolina, i, pl. 51).—GMELIN, Syst. Nat., i, 1788, 1020.—LATHAM, Index Orn., ii, 1790, 578.

Hirundo purpurea WILSON, Am. Orn., v, 1812, 58, pl. 39, figs. 2, 3.—AUDUBON, Orn. Biog., i, 1831, 115, pl. 23; Synopsis, 1839, 37; Birds Am., oct. ed., i, 1840, 170, pl. 45.—SWAINSON and RICHARDSON, Fauna Bor.-Am., ii, 1831, 335.—NUTTALL, Man. Orn. U. S. and Can., i, 1832, 598.—JONES, Nat. in Bermuda, 1859, 34.—WILLIS, Ann. Rep. Smithson. Inst., for 1858 (1859), 281 (Nova Scotia).—MARTENS, Journ. für Orn., 1859, 216 (Bermudas).

Hir[undo] purpurea BOIE, Isis, 1826, 971.

Progne purpurea BONAPARTE, Geog. and Comp. List, 1838, 8.—GRAY, Cat. Fissirostr. Birds Brit. Mus., 1848, 27; Cat. Brit. Birds, 1863, 34.—CASSIN, Illustr. Birds Cal., Tex., &c., 1855, 245.—BURMEISTER, Syst. Ueb. Th. Bras., iii, 1856, 140 (Brazil).—BREWER, N. Am. Ool., 1857, 103, pl. 4, fig. 47.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 314, part; Cat. N. Am. Birds, 1859, no. 231, part.—SCLATER, Cat. Am. Birds, 1862, 38.—BLAKISTON, Ibis, 1862, 4 (Saskatchewan); 1863, 65 (do.).—COUES, Ibis, 1865, 163 (Arizona); Check List, 1873, no. 117; Birds N. W., 1874, 91 (excl. syn. part).—MCLlwRAITH, Proc. Essex Inst., v, 1866, 87 (Hamilton, Ontario).—DEGLAND and GERBE, Orn. Eur., i, 1867, 594.—NEWTON, ed. Yarrell's Hist. Brit. Birds, ii, 1880, 361.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883,

^aOne page of copy containing references under this name has become mislaid or lost. Should it be found before the completion of the volume, the missing references will be given in the Addenda.

- 223, part (Coahuila, Mazatlan, Guadalajara, Tepic, Guanajuato, and alpine reg. Vera Cruz, Mexico; (?) Belize, British Honduras).—SHARPE, Cat. Birds Brit. Mus., x, 1885, 173, 632, part (U. S. localities; Brazilian localities?; excl. syn. *cryptoleuca* Baird).—?SALVIN, Ibis, 1888, 255 (Cozumel I., May).—SHARPE and WYATT, Mon. Hirund., 1894, 439, part, pl. 87 (includes *P. cryptoleuca*).
- (?) *P[rogne] purpurea* GRAY, Gen. Birds, i, 1845, 59.—CABANIS, Mus. Hein., i, 1850, 50 (Brazil).
- [*Progne*] *purpurea* BONAPARTE, Consp. Av., i, 1850, 337.—GRAY, Hand-list, i, 1869, 74, no. 886.—COUES, Key N. Am. Birds, 1872, 114, part.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 14, part.
- Ptyonoprogne purpurea* BOUCARD, Cat. Av., 1876, 335, no. 10526.
- [*Hirundo*] *violacea* GMELIN, Syst. Nat., i, 1788, 1026 (based on *Hirondelle de la Louisiane* Daubenton, Pl. Enl., pl. 722).—LATHAM, Index Orn., ii, 1790, 574.
- Cecropis violacea* BOIE, Isis, 1828, 316.—LESSON, Compl. Buffon, viii, 1837, 498.
- Hirundo carulea* VIEILLLOT, Ois. Am. Sept., i, 1807, 27, pls. 26, 27.—LESSON, Traité d'Orn., 1831, 269.
- Hirundo versicolor* VIEILLLOT, Nouv. Dict. d'Hist. Nat., xiv, 1817, 509 (based on *H. purpurea* Linnaeus and *H. violacea* Gmelin); Enc. Méth., ii, 1823, 522.
- Hirundo ludoviciana* CUVIER, Règne Anim., i, 1817, 374.
- Progne elegans*, part, BAIRD, Review Am. Birds, May, 1865, 275 (adult male from Bahia, Brazil).
- Progne subis cryptoleuca* (not *Progne cryptoleuca* Baird) SCOTT, Auk, vi, 1889, 325 (s. Florida, north to Tarpon Springs; crit.).
- Progne cryptoleuca* (not of Baird) SCOTT, Auk, ix, 1892, 213 (Caloosahatchie R., Florida, breeding).
- Progne subis floridana* MEARNS, Proc. U. S. Nat. Mus., xxiv, no. 1274, 1902, 918 (Lake Kissimmee, Florida; coll. U. S. Nat. Mus.).

PROGNE SUBIS HESPERIA Brewster.

WESTERN MARTIN.

Similar to *P. s. subis*, the adult male not distinguishable as to coloration, but averaging slightly smaller (except bill and feet); adult female much paler than that of *P. s. subis*, the under parts more extensively white, with chin and throat nearly uniform grayish white or pale gray, the darker gray feathers of chest with very broad margins of very pale gray or grayish white, the "hoary" (white or very pale grayish) of forehead more extensive, invading the crown to a greater or less extent, and the pale grayish or grayish white collar round hindneck more distinct.

Adult male.—Length (skins), 168–206 (180.6); wing, 138–153 (145.5); tail, 67–79 (73.3), forked for 16–23 (19.7); exposed culmen, 10–12 (11.7); width of bill at frontal antiæ, 8–9.5 (8.4); tarsus, 14–15.5 (15.1); middle toe, 16–18 (17).^a

Adult female.—Length (skins), 160–193 (177); wing, 135–147 (141); tail, 65–74.5 (69.7), forked for 14–20 (17.1); exposed culmen, 10–12

^aTwenty specimens.

(11.4); width of bill at frontal antiæ, 8-9 (8.7); tarsus, 14-16.5 (15.3); middle toe, 15-17 (16.5).^a

Pacific coast district, from Cape St. Lucas (where resident) to British Columbia (Vancouver Island, etc.); eastern Nicaragua (Rio Escondido), in winter.

Progne purpurea (not *Hirundo purpurea* Linnæus) BONAPARTE, Compt. Rend., xxxviii, 1854, 650 (California).—BAIRD, Proc. Ac. Nat. Sci. Philad., 1859, 303 (Cape St. Lucas).—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 186 (Fort Steilacoom and Nisqually Plains, Washington).—COOPER, Orn. Cal., 1870, 113, part.

Progne subis (not *Hirundo subis* Linnæus) BAIRD, Review Am. Birds, 1865, 274, part (Cape St. Lucas).—RIDGWAY, Orn. 40th Parallel, 1877, 439, part (San Francisco and Sacramento, California).—BELDING, Proc. U. S. Nat. Mus., i, 1878, 408 (Stockton and Marysville, California); v, 1882, 547 (San José del Cabo, Lower California).—ANTHONY, Auk, iii, 1886, 169 (Washington Co., Oregon).—EVERMANN, Auk, iii, 1886, 183 (Ventura Co., California).—RATHBUN (S. F.), Auk, xix, 1902, 138 (Seattle, Washington, breeding).

Progne subis hesperia BREWSTER, Descr. Sup. New Species Birds from W. N. Am. and Mex., Jan. 31, 1889, 92 (Sierra de la Laguna, Lower California; coll. W. Brewster); Auk, vi, April, 1889, 92; Bull. Mus. Comp. Zool., xli, 1892, 164 (Lower California; habits).—AMERICAN ORNITHOLOGISTS' UNION, Auk, vii, 1890, 63; Check List, 2d ed., 1895, no. 611a.—RICHMOND, Proc. U. S. Nat. Mus., xviii, 1893, 485 (Escondido R., Nicaragua, Sept. 13).—FISHER, (A. K.), N. Am. Fauna, no. 7, 1893, 109 (Fort Tejon, California, breeding).—ANTHONY, Zoe, iv, 1893, 243 (San Pedro Martir Mts., Lower California, breeding from 2,500 ft. up).—ANTHONY, Auk, xii, 1895, 141

^a Fifteen specimens.

Specimens from California and northward to Vancouver Island are decidedly larger than those from the Cape St. Lucas district of Lower California, but since they do not, so far as I am able to see, differ at all in color, should doubtless be referred to the same form. Average measurements according to locality are as follows:

Locality.	Wing.	Tail.	Exposed culmen.	Width of bill at frontal antiæ.	Tarsus.	Middle toe.	Fork of tail.
MALES.							
Eight adult males from Cape St. Lucas district	141.7	70.8	11.1	8.5	14.9	17.1	18.9
Ten adult males from California	148.4	75.3	12.2	8	15.1	16.9	20.4
One adult male from Vancouver Island ...	149	77	11.5	8.5	15	17	23
One adult male from Nicaragua (Blue-fields, September)	142.5	69	11	8	15	17	16
FEMALES.							
Three adult females from Cape St. Lucas district	137	70.5	12	8.5	15.7	16.7	17.8
Seven adult females from southern California	139.6	68.3	11.2	8.8	15.1	16.3	16.5
Four adult females from northern California	145.5	72.1	11.2	8.6	15.4	15.6	18.5
One adult female from Nicaragua (Rio Escondido, September)	145	66	11	9	15	16.5	14

(San Fernando, Lower California).—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 607.—HATCH, Auk, xiii, 1896, 347 (Escondido, California).—GRINNELL, Pub. ii, Pasadena Acad. Sci., 1898, 41 (Los Angeles Co., California, summer resid.).—MAILLIARD, Condor, iii, 1901, 125 (San Benito Co., California, breeding).—BARLOW, Condor, iii, 1901, 174 (Placerville, California, breeding).

Progne hesperia SHARPE and WYATT, Mon. Hirund., 1894, 455, pl. 88.

PROGNE CRYPTOLEUCA Baird.

CUBAN MARTIN.

Adult male.—Exactly like *P. subis* in coloration, except that the feathers of the lower abdomen are always crossed by a broad but concealed band of pure white; tail relatively longer and more deeply forked, with lateral rectrices rather narrower terminally; length (skins), 173–187 (180.1); wing, 140–145 (142.5); tail, 72–77 (74.2), forked for 18–22.5 (20.4); exposed culmen, 10–12 (11.4); depth of bill at frontal antiæ, 8–10 (9.5); tarsus, 12–15 (14.3); middle toe, 12–15 (14.3).^a

Adult female.—Very different from that of any of the forms of *P. subis*, but very closely resembling that of *P. dominicensis*; above dark sooty brown, the feathers margined terminally (except on forehead and anterior portion of crown) with dark steel blue, these glossy margins broadest on back and scapulars, where the underlying grayish brown color is mostly concealed; wings and tail darker sooty brown or blackish, faintly glossed with greenish blue; sides of head and neck, chin, throat, chest, sides, axillars, and under wing-coverts uniform grayish brown or deep sooty gray, similar to color of forehead, but rather paler; breast, abdomen, anal region, and under tail-coverts immaculate white, strongly and abruptly contrasted with the uniform grayish brown or sooty gray color of chest and sides; length (skins), 172; wing, 140; tail, 67–69 (68), forked for 17–18 (17.5); exposed culmen, 10; width of bill at frontal antiæ, 9; tarsus, 5; middle toe, 15.

Immature male (second year).—Similar to the adult female in coloration, but longer under tail-coverts with a central space of sooty gray, and upper parts rather more strongly and more uniformly glossed with steel blue. (Older individuals have the upper parts nearly uniform dark violaceous steel blue, and scattered feathers of the same color on the under parts, appearing first on throat and chest.)

Island of Cuba, Greater Antilles; occasional or accidental in southern Florida (Cape Florida, one specimen, May 18, 1858; Clear Water, one specimen, date not recorded, but in summer plumage).

Hirundo purpurea (not of Linnæus) D'ORBIGNY, in La Sagra's Hist. Nat. Cuba, Ois., 1840, 94 (excl. syn.).

Progne purpurea (not of Boie) GUNDLACH, Journ. für Orn., 1856, 3 (Cuba); 1861, 328 (do).—BREWER, Proc. Bost. Soc. N. H., vii, 1860, 306 (Cuba).—(?) SALVIN

^a Six specimens.

and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 223, part (Belize, British Honduras).—SHARPE, Cat. Birds Brit. Mus., x, 1885, 173, part (in synonymy).—SHARPE and WYATT, Mon. Hirund., 1894, 439, part.

(?) *P[rogne] purpurea* NEWTON (A. and E.), Handb. Jamaica, 1881, 107 (Jamaica). *Progne cryptoleuca* BAIRD, Review Am. Birds, May, 1865, 277 (Remedios, Cuba; coll. U. S. Nat. Mus.).—GUNDLACH, Journ. für Orn., 1872, 431.—CORY, List Birds W. I., 1885, 10 (Cuba); Cat. W. I. Birds, 1892, 114, 152 (do.).—RIDGWAY, Man. N. Am. Birds, 1887, 593.—CHAPMAN, Auk, v, 1888, 399.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 2d ed., 1895, no. 611.¹

Progne subis, var. *cryptoleuca* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 332.

Progne subis cryptoleuca RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 175; Nom. N. Am. Birds, 1881, no. 152a.

[*Progne*] *cryptoleuca* GRAY, Hand-list, i, 1869, 75, no. 894.—CORY, List Birds W. I., 1885, 10.

P[rogne] cryptoleuca RIDGWAY, Man. N. Am. Birds, 1887, 459.

Progne, ——— ? BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 923 (Cape Florida).

Progne ——— BAIRD, Cat. N. Am. Birds, 1859, no. 231a.

Progne subis (not *Hirundo subis* Linnæus) CORY, Auk, iii, 1886, 56 (Cuba); Birds W. I., 1889, 70 (do.).

(?) *Progne dominicensis* (not *Hirundo dominicensis* Gmelin?) CORY, Auk, viii, 1891, 294 (Cuba).

PROGNE DOMINICENSIS (Gmelin).

CARIBBEAN MARTIN.

Adult male.—Uniform glossy steel blue, or violaceous steel blue, the median portion of breast, abdomen, anal region, and under tail-coverts immaculate white; the longer under tail-coverts sometimes with a central, mostly concealed, space of dusky gray, the lateral series sometimes with outer webs dusky gray edged with white; wings and tail black, faintly glossed with bluish; bill black; iris brown; legs and feet brownish black or deep brown (in dried skins); length (skins), 163–191 (178); wing, 134–149 (143.5); tail, 70–79 (74.2), forked for 15–22 (19); exposed culmen, 10–12 (11.2); width of bill at frontæ, 8.5–10 (9.4); tarsus, 13.5–15 (14.1); middle toe, 14–16 (15).^a

Adult female.—Above glossy dark steel blue or violaceous blue, changing to dark sooty brown on forehead; wings and tail black, faintly glossed with greenish blue; sides of head and neck grayish brown or sooty, like forehead, the auricular region more or less glossed or overlaid by steel blue; malar region, chin, throat, chest, sides, flanks, axillars, and under wing-coverts plain deep sooty gray or grayish brown, the chin and throat sometimes distinctly paler, the feathers of chest (sometimes of throat also) indistinctly tipped with pale gray; median portion of breast, abdomen, anal region, and under tail-coverts immaculate white; bill black, or brownish black; iris brown; legs and feet deep brown or dusky (in dried skins); length, (skins), 162–187 (167); wing, 130–148 (140); tail, 66–76 (71.9), forked for 14–20.5 (18.3); exposed culmen, 10–12 (11.1); width of bill at

^a Twenty-two specimens.

frontal antiæ, 9-10 (9.6); tarsus, 14-15 (14.4); middle toe, 14-16 (14.8).^a

Immature male.—Exactly like the adult female in coloration.

Young male and female (first year).—Similar to the immature male (second year) and adult female, but upper parts much more faintly glossed with steel blue.

West Indies, except Cuba^b and Bahamas. (Haiti; Jamaica; Porto Rico; Hat Island; St. Martins; St. Eustatius; St. Christopher; Dominica; Martinique; Santa Lucia; St. Vincent; Grenada; Barbados.) Island of Tobago.

[*Hirundo*] *dominicensis* GMELIN, Syst. Nat., i, 1788, 1025 (based on *Hirondelle de S. Domingue* BRISSON, Orn., ii, 493; *Hirondelle d'Amerique* Daubenton, Pl. Enl., pl. 545, fig. 1).

Hirundo dominicensis VIEILLLOT, Ois. Am. Sept., i, 1807, 59, pls. 28, 29 (Santo Domingo).—(?) JARDINE, Ann. & Mag. N. H., xviii, 1846, 120 (Tobago; breeding).—TAYLOR, Ibis, 1864, 166 (Porto Rico).—BRYANT, Proc. Bost. Soc. N. H., x, 1866, 251 (Porto Rico); xi, 1866, 94 (Santo Domingo).

Progne dominicensis GOSSE, Birds, Jamaica, 1847, 69.—SALLÉ, Proc. Zool. Soc. Lond., 1857, 232 (Santo Domingo).—SCLATER, Cat. Am. Birds, 1862, 38, part (Jamaica).—MARCH, Proc. Ac. Nat. Sci. Philad., 1863, 296 (Jamaica).—BAIRD, Review Am. Birds, 1865, 279 (Jamaica; Porto Rico; Santo Domingo).—GUNDLACH, Journ. für Orn., 1872, 419 (Porto Rico); Anal. Soc. Esp. Hist. Nat., vii, 1878, 196 (do.).—COUES, Bird Col. Val., 1878, 446, footnote (synonymy).—LAWRENCE, Proc. U. S. Nat. Mus., i, 1878, 56 (Dominica), 190 (St. Vincent); i, 1879, 269 (Grenada), 354 (Martinique), 487.—ALLEN, Bull. Nutt. Orn. Club, v, 1880, 166 (Santa Lucia).—LISTER, Ibis, 1880, 40 (St. Vincent).—CORY, Birds Haiti and San Dom., 1885, 44, pl. 21, fig. 2; Auk, iii, 1886, 56; viii, 1891, 47 (St. Eustatius), 48 (St. Christopher), 294 (Cuba^c);

^a Twelve specimens.

Specimens from different islands average, respectively, as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Width of bill at frontal antiæ.	Tarsus.	Middle toe.	Fork of tail.
MALES.							
Three adult males from Jamaica.....	143	72	11	9.2	14	14	18.8
Five adult males from Porto Rico.....	147	76	10.9	8.9	14.2	15	20
One adult male from St. Vincent.....	144	76	11	9	15	15	20.5
Two adult males from Dominica.....	144	72	10	9	14.2	15.2	17
Seven adult males from Santa Lucia....	140.8	74.3	11.4	9.5	14.4	15	19
Three adult males from Guadeloupe....	142.7	73.7	11	9	13.8	15	18.2
One adult male from Grenada.....	148	78	12	10	15	15	18
FEMALES.							
Two adult females from Jamaica.....	136.5	69	11.5	10	15	15	17.5
Four adult females from Porto Rico.....	140	74	10	9.4	14.4	15	20.2
Two adult females from Dominica.....	143.5	70	11	10	14	14	14.5
Two adult females from Santa Lucia....	138.7	70.2	11	9.5	14	14.5	18.7
One adult female from Grenada.....	148	73	12	10	15	15	20
One adult female from Tobago.....	135	73	11	9	14	14	17.5

^b The species is recorded from Cuba by Mr. Cory (Auk, viii, 1891, 294), but in view of the circumstance that the bird was apparently merely observed ("recorded"), not collected, there is a possibility the species may have been *P. cryptoleuca*.

^c Possibly *P. cryptoleuca*.

- x, 1893, 220 (Tobago); Birds W. I., 1889, 70; Cat. W. I. Birds, 1892, 114, 152 (Jamaica; Haiti; St. Eustatius, St. Christopher; Dominica; Martinique; Grenada; Barbados; Tobago).—SHARPE, Cat. Birds Brit. Mus., x, 1885, 176, 633 (Porto Rico; Santo Domingo; Jamaica; Dominica; Santa Lucia).—WELLS, Proc. U. S. Nat. Mus., ix, 1887, 612 (Grenada; habits).—SCOTT, Auk., x, 1893, 181 (Jamaica).—SHARPE and WYATT, Mon. Hirund., 1894, 465, 487, pl. 91.
- P[rogne] dominicensis* GRAY, Gen. Birds, i, 1845, 59.—NEWTON (A. and E.), Handb. Jamaica, 1881, 107.
- [*Progne*] *dominicensis* BONAPARTE, Consp. Av., i, 1850, 337.—GRAY, Hand-list, i, 1869, 74, no. 891.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 14.—CORY, List Birds W. I., 1885, 10.
- Progne (subis var ?) dominicensis* BAIRD, BREWER and RIDGWAY, Hist. N. Am. Birds, i, 1874, 328, footnote.
- Hirundo albibentris* VIEILLOT, Nouv. Dict. d'Hist. Nat., xiv, 1817, 533 (Santo Domingo?); Enc. Méth., ii, 1823, 531.

PROGNE SINALOÆ Nelson.^a

SINALOA MARTIN.

Similar to *P. dominicensis*, but smaller.

Adult male.—Exactly like that of *P. dominicensis* in coloration; length (skins), 168–190 (177); wing, 136–138 (136.7); tail, 67–72 (69.5), forked for 16.5–19.5 (17.5); exposed culmen, 10–10.5 (10.1); width of bill at frontal antiæ, 8–9 (8.4); tarsus, 12.5–13.5 (13.2); middle toe, 13–15 (14).^b (Adult female not seen.)

Western Mexico, in State of Sinaloa (Plomosas).

Progne sinaloæ NELSON, Proc. Biol. Soc. Wash., xii, March 24, 1898, 59 (Plomosas, Sinaloa; coll. U. S. Nat. Mus.).

PROGNE CHALYBEA CHALYBEA (Gmelin).

GRAY-BREADED MARTIN.

Adult male.—Above uniform dark steel blue or violaceous steel blue, usually changing gradually to dull sooty on forehead;^c wings and tail black, faintly glossed with bluish; loreal, suborbital and malar regions, chin, throat, chest, sides and outer portion of flanks plain grayish brown or sooty gray, the chin and throat usually somewhat paler than other parts, the feathers of chest usually tipped, more or less distinctly, with pale gray or grayish white;^d rest of under parts

^a This form is probably a subspecies of *P. dominicensis*, but without knowledge as to the coloration of the adult female and young it would be unwise to so name it. As in the case of *P. cryptoleuca*, the adult male of which is practically identical in coloration with that of *P. subis* while the adult female and young are indistinguishable from those of *P. dominicensis*, the present form may prove to be very different from the latter in its unknown plumages.

^b Four specimens.

^c Possibly fully adult males always have the forehead steel blue like the rest of the upper surface; but there are comparatively few such in collections.

^d Sometimes the sides of the breast have a patch, more or less extensive, of steel blue, and very rarely this covers most of the parts usually gray, only the chin and

immaculate white, the longer under tail-coverts usually showing slender shaft-lines of dusky; axillars and under wing-coverts uniform deep sooty gray; bill black; iris brown; legs and feet blackish or dusky brown; length (skins), 152–197 (165.3); wing, 128–141 (133.6); tail, 60–74 (66.5), forked for 11.5–19.5 (15.1); exposed culmen, 9–12 (10.9); width of bill at frontal antiæ, 7–10 (8.2); tarsus, 12–15 (13.5); middle toe, 13.5–15.5 (14.7).^a

Adult female.—Similar to the adult male, but the steel-blue gloss of upper parts less continuous (the forehead and at least anterior portion of crown always sooty), usually less brilliant and less violaceous; chin and throat usually paler gray, sometimes very pale gray or grayish white, with basal (mostly concealed) portion of feathers deeper gray; length (skins), 144–176 (164.5); wing, 128–137 (133.3); tail, 54–69 (64.1), forked for 9–16 (12.7); exposed culmen, 10–11.5 (10.5); width of bill at frontal antiæ, 8–9 (8.3); tarsus, 13–14 (13.6); middle toe, 14–16 (14.6).^b

throat being of the latter color. Such specimens show a marked approach to *P. dominicensis*, and clearly indicate the common origin of the two forms. No examples with more than a trace of steel blue on the under parts (and this on the sides of the breast, or also along sides and flanks, shown in two specimens—one from Dueñas, Guatemala, and the other from the Isthmus of Panama) are found among the Mexican and Central American series examined, but one from Napo, eastern Ecuador (no. 55333, U. S. Nat. Mus. collection), has the sides of the head, the chest, sides, and flanks, nearly uniform steel blue.

^a Thirty specimens.

^b Eleven specimens.

Specimens from different localities average, respectively, as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Width of bill at frontal antiæ.	Tarsus.	Middle toe.	Fork of tail.
MALES.							
Ten adult males from Mexico.....	136	66.8	10.6	8.7	13.3	14.8	15
Two adult males from Yucatan.....	135	67	11.2	8	13.7	14.7	13.7
One adult male from Guatemala.....	130	61	10	8	12	14	15
One adult male from Salvador.....	133	68	.....	.....	14	15.5	15
One adult male from Nicaragua.....	134	64	11	7	13.5	15	14.5
Five adult males from Chiriquí and Panama.....	130.3	64.2	11	8.3	13.2	14.1	14.8
Five adult males from Trinidad.....	132.1	66.1	10.8	7.9	13.5	15.2	15
Three adult males from British Guiana..	131	68	11.2	8	13.7	14.3	15.2
One adult male from eastern Ecuador..	129	67	10.5	8	13	15	12
Two adult males from Bolivia.....	137	72	11	7.5	15	15.2	17
FEMALES.							
Four adult females from Mexico.....	135	66	10.5	8.4	13.9	15	13.6
Two adult females from Yucatan.....	134	65	10	8.5	13.5	15	13.5
One adult female from Chiapas.....	134	63	10	9	13	14	13
One adult female from Nicaragua.....	130	54	10	8	13	14	9
One adult female from Chiriquí.....	131	65	11	7	14	15	13
One adult female from Trinidad.....	131	64.5	11	8.5	13.5	14.5	12.5
One adult female from British Guiana..	128	64	11.5	8	.....	.....	11

Immature male (second year).—Exactly like the adult female in coloration.

Young male and female (first year).—Similar to the adult female, but much duller in color, the upper parts dark grayish sooty or dull grayish black, slightly if at all glossed, the gray of anterior under parts fading gradually into the white of posterior portions, and inner web of exterior pair of rectrices with an indistinct dull whitish or pale grayish subterminal spot on edge; sides and flanks sometimes faintly tinged with pale brown.

Southeastern Mexico, in States of Tamaulipas (Victoria), Coahuila (Sabinas), Vera Cruz, Oaxaca, Chiapas, and Yucatan, and southward through Central America and South America to Peru, Bolivia, and southern Brazil; island of Trinidad.

[*Hirundo*] *chalybea* GMELIN, Syst. Nat., i, 1788, 1026 (based on *Hirondelle de Cayenne*, *Hirundo cayanensis* Brisson, Orn., ii, 495, pl. 46, fig. 1; Buffon, Hist. Nat. Ois., vi, 675; Daubenton, Pl. Enl., pl. 545, fig. 2).

H[irundo] chalybea MAXIMILIAN, Beitr. Naturg. Bras., iii, pt. ii, 1831, 354.

Cecropis chalybea LESSON, Compl. Buffon, viii, 1837, 498.

H[irundo] chalybaea BOIE, Isis, 1844, 178.

Progne chalybea GRAY, Cat. Fissirostr. Birds Brit. Mus., 1848, 28.—CASSIN, Illustr.

Birds Cal., Tex., etc., 1856, 246 ("California;" error); Proc. Ac. Nat. Sci. Philad., 1860, 133 (Cartagena, Colombia).—LAWRENCE, Ann. Lyc. N. Y., vii, 1862, 318 (Lion Hill, Panama R. R.).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 348 (Panama); 1873, 258 (Xeberos, Yurimaguas, Chyavetas, and Chamicuros, e. Peru); 1879, 495.—BAIRD, Review Am. Birds, 1865, 282 (Cayenne).—LAYARD, Ibis, 1873, 375, 377 (Pará, Brazil; habits).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 224, part (excl. syn. *domestica* Vieillot).—SHARPE, Cat. Birds Brit. Mus., x, 1885, 178, 633 (Jalapa, Mexico; Dueñas, San Gerónimo, and Cahabon, Guatemala; Honduras; Nicoya, Costa Rica; Volcan de Chiriqui, Veragua; Panama; Remedios, Colombia; Esmeraldas, Ecuador; Venezuela; Trinidad; Bartica Grove, British Guiana; Oyapok, Cayenne; Maroni R., and Albina, Surinam; Pará, Brazil; Mexiana I., lower Amazon; Xeberos, e. Peru; Bolivia).—ZELEDON, Anal. Mus. Nac. Costa Rica, i, 1887, 107 (Panama; San José, Costa Rica).—CHERRIE, Auk, ix, 1892, 22 (San José, Costa Rica; nesting habits).—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 486 (Rio Escondido, Nicaragua; habits).—ROBINSON, Proc. U. S. Nat. Mus., xviii, 1896, 678 (Margarita I., Venezuela).—CHAPMAN, Bull. Am. Mus. N. H., vi, 1894, 28 (Trinidad); x, 1898, 26 (Jalapa, Vera Cruz).—ROBINSON and RICHMOND, Proc. U. S. Nat. Mus., xxiv, 1901, 176 (La Guaira, Venezuela).—BERLEPSCH and HARTERT, Novit. Zool., ix, 1902, 14 (Quiribana de Caicara, etc., Venezuela; crit.).—BANGS, Proc. N. E. Zool. Club, iii, 1902, 59 (Boquete and Bogaba, Chiriqui, 4,500–4,800 ft.; crit.).—CLARK (A. H.), Auk, xix, 1902, 266 (Margarita I., Venezuela).—SHARPE and WYATT, Mon. Hirund., 1894, 473, 488, pl. 92.

P[rogne] chalybea GRAY, Gen. Birds, i, 1845, 59.—CABANIS, Mus. Hein., i, 1850, 51 (Guiana; Mexico).—RIDGWAY, Man. N. Am. Birds, 1887, 459.

[*Progne*] *chalybea* BONAPARTE, Consp. Av., i, 1850, 337.—GRAY, Hand-list, i, 1869, 74, no. 887.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 14.

Progne chalybea SALVADORI and FESTA, Boll. Mus. Zool., etc., Torino, xv, no. 357, 1899, 10 (Vinces and Balzar, w. Ecuador).

- Progne domestica* (not *Hirundo domestica* Vieillot) GRAY, Cat. Fissirostr. Birds Brit. Mus., 1848, 28.
- Progne dominicensis* (not *Hirundo dominicensis* Gmelin) GRAY, Cat. Fissirostr. B. Brit. Mus., 1848, 28.—CASSIN, Cat. Hirund. Mus. Philad. Acad., 1853, 10.—BURMEISTER, Syst. Ueb. Th. Bras., iii, 1856, 141.—SCLATER, Proc. Zool. Soc. Lond., 1857, 201 (San Andres Tuxtla, Vera Cruz); 1859, 364 (Jalapa, Vera Cruz); 1860, 292 (Ecuador); Cat. Am. Birds, 1862, 38, part (Esmeraldas, Ecuador; Jalapa; Guatemala).—SCLATER and SALVIN, Ibis, 1859, 13 (Guatemala).—SALVIN, Ibis, 1859, 466 (Belize, British Honduras).—TAYLOR, Ibis, 1860, 110 (Comayagua, Honduras).—OWEN, Ibis, 1861, 61 (San Geronimo, Guatemala; descr. egg).
- (?) *P[rogne] dominicensis* CABANIS, Mus. Hein., i, 1850, 51 (Brazil).
- Progne purpurea* (not *Hirundo purpurea* Linnæus) CABANIS, in Schomburgk's Reis. Brit. Guiana, iii, 1848, 671.—LÉOTAUD, Ois. Trinidad, 1866, 92.
- Progne leucogaster* BAIRD, Review Am. Birds, May, 1865, 280 (Cajabon, Vera Paz, Guatemala; coll. U. S. Nat. Mus.).—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 96 (San José, Costa Rica); Bull. U. S. Nat. Mus., no. 4, 1876, 17 (Barrio, Oaxaca).—FRANTZIUS, Journ. für Orn., 1869, 294 (Costa Rica).—SUMICHRIST, Mem. Bost. Soc. N. H., i, 1869, 547 (Vera Cruz; hot and temperate zones, up to 4,000 ft.).—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 139 (Jalapa, Vera Cruz).
- [*Progne*] *leucogaster* GRAY, Hand-list, i, 1869, 75, no. 892.
- [*Progne*] *leucogastra* SALVIN, Ibis, 1866, 203, in text (Guatemala; crit.).
- Progne leucogastra* SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1867, 569 (Mexicana I. and Pará, lower Amazons), 749 (Xeberos, e. Peru), 754 (Xeberos and Yurimaguas, e. Peru); 1870, 836 (San Pedro, Honduras).—WYATT, Ibis, 1871, 323 (Magdalena Valley, Colombia).—RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880, 236.—NUTTING, Proc. U. S. Nat. Mus., v, 1882, 391 (La Palma, w. Costa Rica).
- Progne (subis var?) leucogaster* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 329, footnote.

PROGNE MODESTA (Nébourg).

GALAPAGOS MARTIN.

Much smaller than any of the continental forms, and lacking any trace of white on sides of lower back or outer edge of sides.

Adult male.—Uniform glossy dark violaceous steel blue, as in *P. subis*, *P. furcata*, etc., but hardly so bright; wings and tail black, very faintly glossed with bluish or greenish; bill black; iris brown; legs and feet brownish black or dusky brown; length (skins), 142–153 (148.2); wing, 122–124 (123); tail, 61–63.5 (62.2), forked for 10–14 (12); exposed culmen, 10; width of bill at frontal antiæ 7–8 (7.5); tarsus, 11–12 (11.7); middle toe, 12.^a

Adult female.—Above black, becoming sooty on head and rump, the back and scapulars strongly glossed or overlaid with violaceous steel blue (much duller than in adult male; upper tail-coverts sometimes with narrow terminal margins of paler; under parts dark sooty gray

^a Four specimens.

or grayish sooty, the feathers with narrow and (except on under tail-coverts) usually indistinct narrow terminal margins of paler; bill, etc., as in adult male; length (skins) 136–161 (145.7); wing, 115–122 (118.5); tail, 55–61 (59), forked for 12–14 (13); exposed culmen, 9.5–10 (9.9); width of bill at frontal antiæ, 7–8 (7.7); tarsus, 11–12 (11.7); middle toe, 12–12.5 (12.2).^a

Galapagos Archipelago (Charles, Indefatigable, James, Albemarle, Chatham, Barrington, and Duncan islands).

Hirundo concolor (not of Sykes, 1832) GOULD, Proc. Zool. Soc. Lond., 1837, 22 (Galapagos Archipelago; coll. of Zool. Soc. Lond.).

[*Progne*] *concolor* BONAPARTE, Cons. Av., i, 1850, 337.

Progne concolor BAIRD, Review Am. Birds, 1865, p. 278.—SALVIN, Trans. Zool. Soc. Lond., ix, pt. 9, 1876, 476.—SHARPE, Cat. Birds Brit. Mus., x, 1885, 176 ("Chatham I.")^b.—RIDGWAY, Proc. U. S. Nat. Mus., xii, 1889, 105 (Eden Rock, Indefatigable I.); xii, 1890, 105 (Indefatigable I.).—ROTHERCHILD and HARTERT, Novit. Zool., vi, 1899, 152 (James, Charles, Indefatigable, Chatham, Barrington and Albemarle islands); ix, 1902, 386, 417 (Gardner Bay, Hood I.; Daphne I.; Eden I., near Indefatigable; Chatham I.; Tagus Cove, Albemarle I.; habits; descr. eggs).—SHARPE and WYATT, Mon. Hirund., 1894, 463, 487, pl. 90.

Progne subis, var. *concolor* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 328.

Hirundo modesta NÉBOUX, Rev. Zool., 1840, 291 (Charles I.).—SUNDEVALL, Proc. Zool. Soc. Lond., 1871, 125 (James I.).

Progne modesta GOULD, Zool. Voy. Beagle, iii, 1841, 39 (James I., Galapagos).—PRÉVOST and DES MURS, Voy. Vénus, 1855, 182.—RIDGWAY, Proc. U. S. Nat. Mus., xix, 1897, 505 (Charles, Indefatigable, and James islands).—BAIRD, Am. Nat., xxxi, 1897, 782 (Albemarle and Duncan islands), 783 (Barrington, and bet. Barrington and Indefatigable islands).

Progne modestus GOULD, Zool. Voy. Beagle, iii, 1841, pl. 5.

Genus PETROCHELIDON Cabanis.

Petrochelidon ^c CABANIS, Mus. Hein., i, 1850, 47. (Type, *Hirundo melanogaster* Swainson.)

(?) *Ilytochelidon* GOULD, Handb. Birds Australia, i, 1865, 111. (Type, *Hirundo nigricans* Vieillot.)

(?) *Lagenoplastes* GOULD, Handb. Birds Australia, i, 1865, 113. (Type, *Collocalia ariel* Gould.)

(?) *Antrochelidon* ^d BALDAMUS, Journ. für Orn., xvii, Nov., 1869, 406. (Type, *Hirundo nigricans* Vieillot.) (Cited by Sharpe and Wyatt as *Amnochelidon*.)

Small or medium-sized Hirundinidæ with the nostrils roundish and opening superiorly, the tarsus shorter than middle toe (without claw), middle toe united to outer toe for about half its basal phalanx, tail

^a Four specimens.

^b Although Dr. Sharpe gives Chatham Island as the locality of Darwin's specimen, Mr. Darwin himself says he obtained it on James Island.

^c "Von πέτρα, Fels, Klippe, und χελιδών, Schwalbe."

^d From "Ἄντρον, a cavern; χελιδών, swallow. (Richmond.)

nearly even, the back streaked with white and the rump with a conspicuous patch of chestnut, cinnamon, or dull whitish.

Bill very short (exposed culmen shorter than distance from nostril to eye), its width at posterior edge of nostrils about equal to length of exposed culmen; culmen straight to near tip, where rather abruptly decurved, but tip of maxilla very slightly uncinatc; maxillary tomium nearly straight, its subterminal notch minute. Tail less than half as long as wing (shorter than distance from bend of wing to tip of longest secondaries), nearly even, the slight emargination less than length of exposed culmen. Tarsus shorter than middle toe (without claw), the upper portion feathered for a considerable distance on inner side; middle toe united to outer by about half the length of its basal phalanx; claws of lateral toes reaching nearly or quite to base of middle claw.

Coloration.^a—Adults with crown, back, and scapulars glossy blue-black, the back more or less streaked with white; forehead white, pale brown, or chestnut; rump chestnut, cinnamon, or cinnamon-buff; sides of head chestnut or cinnamon; abdomen white; longer under tail-coverts dusky, margined with whitish.

Nidification.—Nest retort-shaped, composed of mud-pellets, lined with soft feathers, etc., attached to rocks or sides (usually under eaves) of buildings; eggs spotted.

Range.—Temperate and tropical America, including Greater Antilles. One species in southern Africa. Indo-Malayan and Australian regions?

The relationships of this genus are nearest to *Hylochelidon* Gould, and *Lagenoplastes* Gould, of Australia (the latter extending also to India), which are similar in all respects to *Petrochelidon* except in the tail, which is relatively a little longer and more deeply emarginated. Both have the rump light colored (though the color is brownish white or pale grayish brown instead of chestnut or cinnamon) and the back streaked with white; but they have the under parts entirely whitish, with narrow dusky streaks on the throat and chest, lack any rufous or chestnut on sides of head, the type of *Lagenoplastes* having the entire pileum rufous, that of *Hylochelidon* being uniform blue-black. *Lagenoplastes*, at least, builds a nest identical in character with that of the species of *Petrochelidon*. In short, the structural differences between these two alleged genera (which I would unhesitatingly merge together) and *Petrochelidon* are so slight that little violence would be done to their relationship by referring them to the same genus.^b

^a Of the American species, none of the Old World forms being seen by me.

^b Their relationship to *Petrochelidon* is certainly very much closer than that existing between the American species hitherto referred to *Hirundo* and *Atticora*, respectively. (See page 25.)

KEY TO THE SPECIES AND SUBSPECIES OF PETROCHELIDON.

- a. Crown and occiput glossy blue-black or greenish black. (Adults.)
 - b. Sides of head, chin, and throat chestnut or cinnamon, forehead with a broad and sharply defined patch of chestnut, cinnamon-brown or whitish.
 - c. Sides of head, chin, and throat deep chestnut, the latter with a blackish patch on lower portion. (*Petrochelidon lunifrons*.)
 - d. Frontal patch whitish or pale cinnamon-brown, conspicuously different from the chestnut of sides and under parts of head.
 - e. Larger (wing of adult male 105-115, averaging 108.6); forehead usually soiled white. (Greater part of North America; Central America and parts of South America in winter.)
 - Petrochelidon lunifrons lunifrons*, adults (p. 47)
 - ee. Smaller (wing of adult male 100-104, averaging 102.1); forehead light cinnamon or fawn color. (Southwestern Texas, west of Pecos River, south to Vera Cruz; Costa Rica and Isthmus of Panama in winter.)
 - Petrochelidon lunifrons tachina*, adults (p. 50)
 - dd. Frontal patch deep cinnamon-rufous or chestnut, like sides of head, etc. (Size of *P. l. tachina*.) (Western portion of Mexican plateau, north to southern Arizona; Guatemala? Costa Rica?)
 - Petrochelidon lunifrons melanogaster*, adults (p. 51)
 - cc. Sides of head, chin, and throat much paler chestnut, cinnamon-rufous, or whitish tinged with cinnamon-rufous; no black patch on throat. (*Petrochelidon fulva*.)
 - d. Larger (wing averaging more than 103, tail averaging more than 45); sides of head, throat, sides, etc., less deeply cinnamon-rufous.
 - e. Larger (wing averaging more than 107, tail more than 48, tarsus and middle toe 12 or more); rump paler cinnamon-rufous; sides and flanks more faintly tinged with cinnamon-rufous. (States of Coahuila and Tamaulipas, northeastern Mexico.)
 - Petrochelidon fulva pallida*, adults (p. 56)
 - ee. Smaller (wing averaging less than 104, tail less than 46, tarsus and middle toe less than 12); rump deeper cinnamon-rufous or chestnut; sides and flanks more strongly tinged with cinnamon-rufous. (Cuba; Haiti?; accidental on Dry Tortugas, Florida.)
 - Petrochelidon fulva fulva*, adults (p. 53)
 - dd. Smaller (wing averaging less than 103, tail less than 45); sides of head, throat, sides, etc., deeper cinnamon-rufous. (Jamaica; Porto Rico; northern Yucatan?) *Petrochelidon fulva psciloma*, adults (p. 54)
 - bb. Sides of head, chin, and throat white; forehead with a narrow and very indistinct patch of dull chestnut or dusky brown. (Peru.)
 - Petrochelidon rufocollaris* (extralimital)^a
 - aa. Crown and occiput dull black or dusky. (Young.)
 - b. Rump vinaceous-cinnamon, throat mixed dusky and chestnut. (*Petrochelidon lunifrons*, young.)

^a *Hirundo rufocollaris* Peale, Rep. U. S. Expl. Exped., viii, Mam. and Orn., 1848, 175, "pl. xlix, fig. 1" (near Callao, Peru; type in coll. U. S. Nat. Mus.).—*Petrochelidon rufocollaris* Baird, Review Am. Birds, 1865, 292, footnote; Sharpe, Cat. Birds Brit. Mus., x, 1885, 196, pl. 3 (Lima, Peru); Sharpe and Wyatt, Mon. Hirund., 1894, 567, pl. 108.

- c. Paler, with scapulars and interscapulars distinctly margined with pale grayish buffy; chin and upper throat more or less spotted with white.

Petrochelidon lunifrons lunifrons, young (p. 47)^a

Petrochelidon lunifrons tachina.^a

- cc. Darker, with scapulars and interscapulars not distinctly if at all margined with paler; chin and upper throat chestnut, without white spots.

Petrochelidon lunifrons melanogaster, young (p. 51)

- bb. Rump deep cinnamon-rufous or chestnut; throat pale vinaceous-cinnamon or cinnamon-buff, without admixture of dusky. (*Petrochelidon fulva*, young.)

- c. Larger and less deeply colored, the throat whitish, the sides less strongly rufescent..... *Petrochelidon fulva fulva*, young (p. 53)

- cc. Smaller and deeper colored, the throat pale vinaceous-cinnamon.

Petrochelidon fulva posselema, young (p. 54)

PETROCHELIDON LUNIFRONS LUNIFRONS (Say).

CLIFF SWALLOW.

Adults (sexes alike).—Forehead dull white, dull pale ecru drab or pale wood brown, forming a conspicuous patch, very sharply defined posteriorly, its extremities pointed; crown and occiput glossy blue-black; hindneck hair brown or brownish gray; back and scapulars glossy blue-black, the former streaked with pale gray or whitish; rump light cinnamon-rufous; upper tail-coverts brownish gray or hair brown with paler margins; wings and tail dusky grayish brown, the secondaries with paler margins, these sometimes whitish terminally; lores blackish; auricular, suborbital, and malar regions, chin and throat, rich chestnut, this sometimes extending, narrowly, around posterior margin of the black pileum; a patch of somewhat glossy black on lower throat, sometimes extending, brokenly, over upper median portion of chest; chest, sides, and flanks pale grayish brown, the first usually more or less tinged with pale chestnut, sometimes strongly so; rest of under parts whitish, the longer upper tail-coverts dusky, or dark grayish brown, margined with white; under wing-coverts and axillars pale brownish gray; bill black; iris brown; legs and feet dusky or horn colored.

Young.—Much duller in color than adults; pileum, back, and scapulars dull blackish or sooty, the feathers often with more or less distinct paler terminal margins; tertials margined terminally with pale vinaceous-cinnamon; forehead sometimes dull chestnut or brownish, more often dusky, like crown; sides of head and throat mixed grayish brown, dusky and dull chestnut, in varying relative amount;^b rest of under parts as in adults, but sides, flanks, and under tail-coverts more or less strongly tinged with pinkish buff or vinaceous-buff.

^a I am unable to give characters which will serve to distinguish the young of these two forms.

^b The young of this species are remarkably affected by partial albinism about the head, every one of the sixteen specimens in first plumage examined in the present connection having a greater or less number of white feathers scattered among the normally colored ones, chiefly on the throat or forehead, or both.

Adult male.—Length (skins), 121–136 (127.5); wing, 105–115 (108.6); tail, 47–52 (49.4); exposed culmen, 6.5–8 (7.2); width of bill at frontal antæ, 7–8 (7.1); tarsus, 11–14 (12.6); middle toe, 11–14 (12.2).^a

Adult female.—Length (skins), 120–134 (126.9); wing, 102–110 (106.7); tail, 45–51 (48.7); exposed culmen, 7–8 (7.4); width of bill at frontal antæ, 6.5–8 (6.7); tarsus, 11.5–13 (12.6); middle toe, 11–13 (11.9).^b

Nearly the whole of North America; breeding north to Nova Scotia (Cape Breton), New Brunswick (upper St. Johns River), Anticosti Island, Province of Quebec (Godbout), etc., in the interior to Territory of Mackenzie (Fort Anderson, Fort Simpson, Point Lake, Mackenzie, Anderson, and Lockhart rivers), and the Yukon Valley of Alaska (Fort Yukon, Nulato, St. Michael, etc.), and on the Pacific coast to British Columbia; breeding southward over nearly the whole of the United States (except Rio Grande Valley, at least above mouth of the Pecos River),^c and coast district of northwestern Mexico, as far as Mazatlan and Tepic. In winter, southward through Mexico and Central America, at least to Honduras (Truxillo). Said to occur in winter in Brazil, Paraguay, Argentina, and other parts of South America.^d

Hirundo, 35, FORSTER, Philos. Trans., lxxii, 1772, 408 (Severn R.).

Hirundo lunifrons SAY, in Long's Exped. Rocky Mts., ii, 1823, 47 (Rocky Mts.).—

SWAINSON and RICHARDSON, Fauna Bor.-Am., ii, 1831, 331 (Point Lake, lat. 65°, Slave and Mackenzie rivers, etc.).—BREWER, Proc. Bost. Soc. N. H., 1852, 270 (habits); N. Am. Ool., 1857, 94, pl. 5, figs. 68–73.—WOODHOUSE, Rep. Sitgreaves' Exp. Zuffi and Colorado R., 1853, 64.—CASSIN, Illustr. Birds Cal., Tex., etc., 1855, 243.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 309; Cat. N. Am. Birds, 1859, no. 226.—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 184 (Oregon and Washington).—BOARDMAN, Proc. Bost. Soc. N. H., ix, 1862, 125 (Maine).—VERRILL, Proc. Bost. Soc. N. H., ix, 1862, 137 (Anticosti); ix, 1863, 276 (migrations, etc.); Proc. Essex Inst., iii,

^a Seventeen specimens.

^b Fourteen specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Width of bill at frontal antæ.	Tarsus.	Middle toe.
MALES.						
Seven adult males from east of Mississippi River .	107.6	49.9	7.2	7.3	12.6	11.8
Ten adult males from Rocky Mountains, westward .	109.4	49	7.1	7	12.5	12.5
FEMALES.						
Eight adult females from east of Mississippi River .	107	48.6	7.2	6.8	12.5	12
Three adult females from Rocky Mountains	107.6	49.6	7.6	6.6	12.5	11.6
Three adult females from California	106.6	48.6	8	7	13	11.6

^c I have not seen breeding specimens from southern Texas east of the Pecos River; possibly they may be referable to *P. l. tachina*.

^d Not having seen any South American examples, I can not be sure that they belong to the present form.

- 1862, 148 (Maine).—BLAKISTON, Ibis, 1863, 64 (Saskatchewan).—LORD, Proc. Roy. Art. Inst. Woolw., iv, 1864, 116 (British Columbia).—DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 279 (Nulato, Fort Yukon, and St. Michael, Alaska; habits).—COOPER, Orn. Cal., 1870, 104.—HARTING, Handb. Brit. Birds, 1872, 125.
- [*Hirundo*] *lunifrons* BOIE, Isis, 1828, 315; 1844, 175.—GRAY, Hand-list, i, 1869, 71, no. 836.
- Petrochelidon lunifrons* CASSIN, Cat. Hirund. Mus. Philad. Acad., 1853, 4.—(?) SCLATER, Cat. Am. Birds, 1862, 40 (Mexico).—BAIRD, Review Am. Birds, 1865, 288.—COUES, Check List, 1873, no. 114; 2d ed., 1882, no. 162; Birds N. W., 1874, 88; Birds Col. Val., 1878, 426.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 334, pl. 16, fig. 13.—(?) LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 271 (Mazatlan and Tepic, w. Mexico; breeding).—HENSCHAW, Zool. Exp. 100th Merid., 1875, 215 (Snake Valley, Nevada; mid. and s. Utah; Fort Garland, Colorado; New Mexico; Arizona; habits; western references).—RIDGWAY, Orn. 40th Parallel, 1877, 440 (localities in California and Nevada; habits); Nom. N. Am. Birds, 1881, no. 153; Proc. U. S. Nat. Mus., ix, 1886, 139 (Acatlan, Puebla; crit. nomencl.); x, 1887, 579 (Truxillo, Honduras, Sept. 21); Orn. Illinois, i, 1889, 205.—BREWSTER, Bull. Nutt. Orn. Club, iii, 1878, 63 (descr. young); Proc. Bost. Soc. N. H., xxii, 1883, 372 (Cape Breton, Nova Scotia, and Anticosti I., breeding); Bull. Mus. Comp. Zool., xli, 1902, 165 (San José del Cabo, etc., Lower California, Sept., Oct., Apr.).—MERRILL, Proc. U. S. Nat. Mus., i, 1878, 125 (Fort Brown, Texas, breeding).—KNOWLTON, Bull. Nutt. Orn. Club, vi, 1881, 55 (Brandon, Vermont; habits).—BATCHELDER, Bull. Nutt. Orn. Club, vii, 1882, 110 (upper St. John R., Maine and New Brunswick, breeding).—MERRIAM, Bull. Nutt. Orn. Club, vii, 1882, 235 (Godbout, Province of Quebec, breeding).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 612.—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 139 (Acatlan, Puebla).—KIMBALL, Auk, vi, 1889, 338 (mortality in n. Illinois; "over 90 per cent died").—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1890, 609 (Manitoba; habits, etc.).—CHAPMAN, Bull. Am. Mus. N. H., iii, 1890, 149 (Ashcroft, British Columbia; crit.).—MACFARLANE, Proc. U. S. Nat. Mus., xiv, 1891, 443 (Fort Good Hope, Mackenzie R.; Fort Anderson; Lockhart and Anderson rivers).—ATTWATER, Auk, ix, 1892, 340 (San Antonio, Texas, breeding).—DWIGHT, Auk, x, 1893, 12 (Prince Edward I., breeding).—NEHRING, Our Native Birds, etc., i, 1893, 345, pl. 18, fig. 4.—FLEMING, Auk., xix, 1902, 403 (Muskoka, n. w. Ontario, breeding).
- [*Petrochelidon*] *lunifrons* COUES, Key N. Am. Birds, 1872, 114.
- P[*etrochelidon*] *lunifrons* COUES, Key N. Am. Birds, 2d ed., 1884, 323.—RIDGWAY, Man. N. Am. Birds, 1887, 460.
- Herse lunifrons* COUES, Ibis, 1865, 159, in text (Los Piños, New Mexico).
- Hirundo fulva*, var. *lunifrons* COOPER, Proc. U. S. Nat. Mus., ii, Jan. 20, 1880, 246 (California).
- Hirundo opifex* DE WITT CLINTON, Ann. Lyc. Nat. Hist. N. Y., i, 1824, 161.
- Hirundo republicana* AUDUBON, Ann. Lyc. Nat. Hist. N. Y., i, 1824, 164.
- Hirundo fulva* (not of Vieillot, 1807) DE WITT CLINTON, Ann. Lyc. Nat. Hist. N. Y., i, 1824, 156.—BONAPARTE, Am. Orn., i, 1825, 63, pl. 7, fig. 1; Ann. Lyc. N. Y., ii, 1828, 64; Geog. and Comp. List, 1838, 9.—AUDUBON, Orn. Biog., i, 1831, 353, pl. 58; Birds Am., oct. ed., i, 1840, 177, pl. 47.—LESSON, Traité d'Orn., 1831, 270.—NUTTALL, Man. Orn. U. S. and Can., i, 1832, 603.
- [*Hirundo*] *fulva* BOIE, Isis, 1828, 315, part; 1844, 175, part.
- Hirundo fulvus* WILLIS, Ann. Rep. Smithson. Inst. for 1858 (1859), 281 (Nova Scotia).

- [*Herse*] *fulva* BONAPARTE, Consp. Av., i, 1850, 341, part.
Petrochelidon fulva (not of Cabanis, 1850) BONAPARTE, Compt. Rend., xxxviii, 1854, 650, part.
 [*Petrochelidon*] *pyrrhonota* (not *Hirundo pyrrhonota* Vieillot?^a) SCLATER and SALVIN, Nom. Av. Neotr., 1873, 14, part.
Petrochelidon pyrrhonota SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 226, part (Mazatlan and Tepic, w. Mexico).—SHARPE, Cat. Birds Brit. Mus., x, 1885, 193, 635, part (North American references and localities).—(?) SALVIN, Ibis, 1888, 256 (Cozumel I.).—SHARPE and WYATT, Mon. Hirund., 1894, 531, 590, part, pl. 104 (North American references and localities).

The following references, usually cited for the present species, are doubtful, either as pertaining to the species in its larger sense or to the North American form:

- [*Hirundo*] *americana* GMELIN, Syst. Nat., i, pt. ii, 1788, 1017 (La Plata; based on *Hirondelle à croupion voux et queue carrée* Buffon, Hist. Nat. Ois., vi, 698; *Rufous-rumped Swallow* Latham, Gen. Synop. Birds, ii, pt. 2, 582).—BOIE, Isis, 1828, 315; 1844, 175.—GRAY, Hand-list, i, 1869, 71, no. 840.
P[etrochelidon] americana CABANIS, Mus. Hein., i, 1850, 47, footnote.
Petrochelidon americana PELZELN, Orn. Bras., 1871, 17, 402.
Hirundo pyrrhonota VIEILLIOT, Nouv. Dict. d'Hist. Nat., xiv, 1817, 519 (Paraguay; based on *Golondrina rabadilla acanelada* Azara, Apunt., ii, 511).
H[irundo] pyrrhonota GRAY, Gen. Birds, i, 1845, 58.
 [*Hirundo*] *pyrrhonota* BOIE, Isis, 1844, 175.
Cotyle pyrrhonota BURMEISTER, Syst. Ueb. Th. Bras., iii, 1856, 145; La Plata Reis., ii, 1861, 477 (Tucuman, Argentina).
 [*Petrochelidon*] *pyrrhonota* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 14, part.
Petrochelidon pyrrhonota DURNFORD, Ibis, 1877, 169 (Buenos Aires, Mar.); 1878, 58 (Moreno, etc., Argentina, Mar., Apr.).—WHITE, Proc. Zool. Soc. Lond., 1882, 595 (Flores, Argentina, Dec.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 226, part (Brazil; Paraguay).—SHARPE, Cat. Birds Brit. Mus., x, 1885, 193, 635, part (Ytarare and Pelotas, Rio Grande do Sul, s. Brazil; Pacheco, Argentina).—BERLEPSCH, Journ. für Orn., 1887, 114 (Paraguay).—SCLATER and HUDSON, Argentine Orn., i, 1888, 30.—SHARPE and WYATT, Mon. Hirund., 1894, 590, part (South American localities and references).—IHERING, Aves do Est. S. Paulo, 1899, 140 (São Paulo, s. Brazil).

PETROCHELIDON LUNIFRONS TACHINA Oberholser.

LESSEE OLIFF SWALLOW.

Similar to *P. l. lunifrons*, but decidedly smaller (size of *P. l. melanogaster*) and the frontal patch fawn color, dull cinnamon, or wood brown.

Adult male.—Length (skins), 103–123 (116.7); wing, 100–104 (102.1); tail, 44–47 (45.3); exposed culmen, 7–8 (7.6); width of bill at frontal antiæ, 6–7 (6.7); tarsus, 11.5–12.5 (12.1); middle toe, 12–13 (12.1).^b

Adult female.—Length (skin), 121; wing, 105.5; tail, 48.5; exposed culmen, 7.5; width of bill at frontal antiæ, 6; tarsus, 11; middle toe, 11.^c

^a See page 48. If really belonging to this species, this name is quite as likely to belong to the smaller southern form, breeding in southern Texas and eastern Mexico (*P. l. tachina*).

^b Seven specimens, from Presidio, Brewster, and Valverde counties, Texas.

^c One specimen, from Presidio County, Texas.

Southwestern Texas, west of the Pecos River, in Presidio County, Brewster County (Paisano), and Valverde County (Langtry), and southward along eastern border of Mexican plateau to State of Vera Cruz (Mirador, August); south in winter to Costa Rica and Panama.

Petrochelidon lunifrons (not *Hirundo lunifrons* Say) LAWRENCE, Ann. Lyc. N. Y., vii, 1862, 317 (Panama R. R.).—BAIRD, Review Am. Birds, 1866, 288, part (Panama).—ZELEDON, Anal. Mus. Nac. Costa Rica, i, 1887, 107 (Costa Rica).—RIDGWAY, Proc. U. S. Nat. Mus., xi, 1888, 540 (San José and Talamanca, Costa Rica).—MEARNS, Auk, xix, 1902, 73, footnote (Rio Grande Valley, resident).

Petrochelidon swainsoni (not of Sclater) BAIRD, Review Am. Birds, 1866, 290, part (Mirador, Vera Cruz).—(?) SHARPE, Cat. Birds Brit. Mus., x, 1885, 194, 635, part (Costa Rica).

(?) *Petrochelidon swainsonii* SUMICHRAST, Mem. Bost. Soc. N. H., i, 1889, 547 (Orizaba and plateau district, Vera Cruz).

[*Petrochelidon*] *pyrrhonota* (not *Hirundo pyrrhonota* Vieillot?) SCLATER and SALVIN, Nom. Av. Neotr., 1873, 14, part.

Petrochelidon pyrrhonota SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 226, part (Panama).—SHARPE and WYATT, Mon. Hirund., 1894, 531, 590, part.

Petrochelidon lunifrons tachina OBERHOLSER, Proc. Biol. Soc. Wash., xvi, Feb. 21, 1903, 15 (Langtry, Valverde Co., Texas; coll. U. S. Nat. Mus.).

PETROCHELIDON LUNIFRONS MELANOGASTER (Swainson).

SWAINSON'S CLIFF SWALLOW.

Similar to *P. l. tachina*, but with the forehead chestnut or cinnamon-rufous instead of pale cinnamon or fawn color.

Adults (sexes alike).—Forehead deep cinnamon-rufous or chestnut (similar in color to sides of head), forming a conspicuous frontal patch, very sharply defined posteriorly and with the extremities pointed; crown and occiput glossy blue-black; hindneck brownish gray, usually becoming chestnut on nape, next to posterior margin of the black pileum; back and scapulars glossy blue-black, the former streaked with white or pale grayish; rump cinnamon-rufous or vinaceous-cinnamon; upper tail-coverts brownish gray or hair brown margined with paler; wings and tail dusky hair brown, faintly glossed; lores blackish; auricular, suborbital and malar regions, chin, and throat rich chestnut, this usually extending around nape behind posterior margin of the black pileum; lower throat with a patch, more or less distinct (sometimes small and broken) of slightly glossy black, extending brokenly to median upper portion of chest; chest, sides, and flanks pale grayish brown, usually more or less tinged with cinnamon, especially on chest; under tail-coverts brownish gray or hair brown, margined with white; axillars and under wing-coverts hair brown; rest of under parts dull white, the anal region usually strongly tinged with vinaceous-cinnamon; bill black; iris brown; legs and feet horn color or dusky.

Young.—Much duller in color than adults; chestnut of head duller,

that of the forehead sometimes replaced by dull brown;^a pileum, back, and scapulars blackish, faintly glossed, the scapulars and interscapulars (at least the more posterior ones) indistinctly margined terminally with paler, secondaries (especially tertials) margined terminally with whitish or pale cinnamon, and the rump vinaceous-cinnamon.

Adult male.—Length (skins), 111–142 (122); wing, 100–108 (103); tail, 44–50 (46.6); exposed culmen, 6–7 (6.8); width of bill at frontal antiæ, 6; tarsus, 11–13 (12); middle toe, 11–12 (11).^b

Adult female.—Length (skins), 118; wing, 103; tail, 46–48 (47); exposed culmen, 7; width of bill at frontal antiæ, 6; tarsus, 12; middle toe, 11.^c

Western portion of Mexican plateau, in States of Oaxaca, Michoacan, Guanajuato, Durango, Chihuahua, Sonora, etc., north to southern Arizona (Nogales; San Bernardino Ranch); Guatemala?

Hirundo swainsoni SWAINSON, Philos. Mag., new ser., i, 1827, 366 ("Table-land of Mexico;" coll. Bullock Mus.); Isis, 1834, 783.

H[irundo] melanogaster SWAINSON and RICHARDSON, Fauna Bor.-Am. ii, 1831, 331, footnote (crit.).—GRAY, Gen. Birds, i, 1845, 58.

[*Hirundo*] *melanogastra* GRAY, Hand-list, i, 1869, 71, no. 835.

P[etrochelidon] melanogastra CABANIS, Mus. Hein., i, 1850, 47 (Mexico).

Petrochelidon melanogastra AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xix, 1902, 324 (Check List no. 612.2).

P[etrochelidon] melanogaster RIDGWAY, Man. N. Am. Birds, 1887, 460.—MEARNS, Auk, xix, 1902, 73, footnote (Mexican boundary line, from San Luis Mts. to Nogales).

(?) *Petrochelidon melanogaster* ZELEDON, Anal. Mus. Nac. Costa Rica, 1887, 107 (Costa Rica).

[*Hirundo*] *fulva* (not of Vieillot) BOIE, Isis, 1844, 175, part.

Petrochelidon swainsoni SCLATER, Proc. Zool. Soc. Lond., 1858, 296 (Oaxaca, Mexico; coll. P. L. Sclater); 1859, 376 (Oaxaca).—BAIRD, Review Am. Birds, 1865, 290 (Mirador, Vera Cruz).—SALVIN, Ibis, 1866, 192 (Dueñas, Guatemala).—LAWRENCE, Bull. U. S. Nat. Mus., no., 4, 1876, 17 (Tehuantepec City, Oct.).—DUGÈS, La Nature, i, 1869, 141 (Guanajuato).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 227.—SHARPE, Cat. Birds Brit. Mus., x, 1885, 194, 635 (Oaxaca, Mexico; Dueñas, Guatemala).—SHARPE and WYATT, Mon. Hirund., 1894, 555, 592, pl. 105.

Petrochelidon swainsonii SCLATER, Cat. Am. Birds, 1862, 40 (Mexico).

[*Petrochelidon*] *swainsoni* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 14.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 335.

Hirundo coronata LICHTENSTEIN, Preis-Verz. Mex. Vög., 1831, 2 (nomen nudum; see Cabanis, Journ. für Orn., 1863, 58).

Petrochelidon lunifrons (not *Hirundo lunifrons* Say) COUES, Birds Col. Val., 1878, 426, part (in synonymy).

^aThe young of this subspecies is apparently not affected by partial albinism in the plumage of the head as that of *P. l. lunifrons* and *P. l. tachina*.

^bEight specimens.

^cTwo specimens.

PETROCHELIDON FULVA FULVA (Vieillot).

CUBAN CLIFF SWALLOW.

Similar to *P. lunifrons melanogastra* but smaller, with sides of head, chin, and throat pale cinnamon-rufous, vinaceous-cinnamon, or whitish tinged with cinnamon, instead of deep chestnut; lower throat without trace of blackish spot; rump deeper chestnut, and back more broadly streaked with white.

Adults (sexes alike).—Forehead deep chestnut, forming a broad frontal patch, less sharply defined posteriorly and less pointed at extremities than in *P. lunifrons* and its subspecies; crown and occiput glossy blue-black or greenish black; hindneck brownish gray, usually with the upper portion (next to black of pileum) chestnut; back and scapulars glossy blue-black, the former conspicuously streaked with white, especially along median portion; rump chestnut or deep cinnamon-rufous; upper tail-coverts hair brown, sometimes with paler margins; wings and tail dusky hair brown, the secondaries sometimes with paler terminal margins; lores blackish; auricular, suborbital and malar regions, chin, and throat varying from whitish, tinged with cinnamon-rufous to between vinaceous-cinnamon and pale cinnamon-rufous; chest, sides, flanks, and crissum similar in color to throat and sides of head, but usually more or less tinged with pale grayish brown; under tail-coverts hair brown, broadly margined with white (this sometimes tinged with pale cinnamon-rufous); breast and abdomen white; axillars and under wing-coverts light broccoli brown or hair brown; bill black; iris brown; legs and feet horn color.

Young.—Much duller in color than adults. Pileum, back, and scapulars dull black; frontal patch much narrower and less distinct than in adults, dull chestnut or cinnamon-brown; tertials and upper tail-coverts broadly margined terminally with cinnamon; auricular region dusky; chin and throat usually white, or very nearly so, sometimes minutely flecked with dusky.

Adult male.—Length (skins), 111–131 (123); wing, 101–108 (103.5); tail, 42–47 (45); exposed culmen, 6.5–7.5 (7); width of bill at frontal antæ, 5.5–7 (6.2); tarsus, 11.5–12 (11.9); middle toe, 11–12 (11.3).^a

Adult female.—Length (skins), 121–129 (123.5); wing, 101–106 (103.7); tail, 44–48 (45.7); exposed culmen, 7; width of bill at frontal antæ, 6–6.5 (6.1); tarsus, 11–11.5 (11.2); middle toe, 11–11.5 (11.2).^b

Island of Cuba (including Isle of Pines), Greater Antilles; island of Haiti?.^c

^a Eleven specimens, from Cuba and Isle of Pines.

^b Four specimens, from Cuba and Isle of Pines.

^c I have not seen any specimens from the island of Haiti, and therefore am not sure that the Cuban birds are really the same form.

Hirundo fulva VIEILLIOT, Ois. Am. Sept., i, 1807, 62, pl. 32 (Santo Domingo); Nouv. Dict. d'Hist. Nat., xiv, 1817, 521; Enc. Méth., ii, 1823, 526.—STEPHENS, in Shaw's Gen. Zool., x, 1817, 126.—SWAINSON and RICHARDSON, Fauna Bor.-Am., ii, 1831, 331, footnote (crit.).—GRAY, Cat. Fissirostr. Birds Brit. Mus., 1847, 24.—THIENEMANN, Journ. für Orn., 1847, 149 (Cuba; descr. egg).

[*Hirundo*] *fulva* BOIE, Isis, 1828, 315, part; 1844, 175, part.

Cecropis fulva LESSON, Compl. Buffon, viii, 1837, 498.

[*Herse*] *fulva* BONAPARTE, Cons. Av., i, 1850, 341, part.

P[etrochelidon] fulva CABANIS, Mus. Hein., i, 1850, 47, footnote (West Indies).—RIDGWAY, Man. N. Am. Birds, 1887, 460, part (Haiti; Cuba).

Petrochelidon fulva GUNDLACH, Jour. für Orn., 1856, 3 (Cuba); 1861, 328 (do.); 1874, 133; Orn. Cuba, 1876, 82.—BAIRD, Review Am. Birds, 1865, 291.—CORY, Bull. Nutt. Orn. Club, vi, 1881, 152 (Haiti); Birds Haiti and San Dom., 1885, 47, pl. 21, fig. 3; Auk, iii, 1886, 57, part; Birds W. I., 1889, 71, part; Cat. W. I. Birds, 1892, 115, part (Cuba; Haiti).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 228, part (Cuba; Haiti).—SHARPE, Cat. Birds Brit. Mus., x, 1885, 195, 635, part (Cuba; Haiti).—SCOTT, Auk, vii, 1890, 264 (Garden Key, Dry Tortugas, Florida, 2 specimens), 311 (do.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, viii, 1891, 86; Check List, 2d ed., 1895, no. 612.1.—CHAPMAN, Bull. Am. Mus. N. H., iv, 1892, 309 (San Juan, S. Cuba).—SHARPE and WYATT, Mon. Hirund., 1894, 561, 592, part.—CHERRIE, Contr. Orn. San Dom., 1896, 12.

[*Petrochelidon*] *fulva* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 14, part.

Hirundo coronata (not of Lichtenstein, 1831) LEMBEYE, Aves de la Isla de Cuba, 1850, 45.—GUNDLACH, Journ. Bost. Soc. N. H., vii, 1852, 318 (Cuba).

PETROCHELIDON FULVA PCEILOMA (Gosse).

JAMAICAN CLIFF-SWALLOW.

Similar to *P. f. fulva* (from Cuba), but much more deeply colored; gloss to black of upper parts rather greenish blue than violet-blue; the cinnamon-rufous or vinaceous-cinnamon color of sides of head, throat, chest, sides, and flanks averaging very much deeper, the same color more strongly suffusing the under tail-coverts.^a Young much deeper colored than that of *P. f. fulva*, with throat pale vinaceous-cinnamon, the sides and flanks strongly vinaceous-cinnamon.

Adult male.—Length (skins), 108–124 (115.3); wing, 101–105 (102.2); tail, 43.5–47 (44.9); exposed culmen, 7; width of bill at frontal antiæ, 6–7 (6.4); tarsus, 11–11.5 (11.1); middle toe, 11–12 (11.2).^b

Adult female.—Length (skins), 110–122 (114.4); wing, 100–103 (101); tail, 44–46 (44.7); exposed culmen, 7; width of bill at frontal antiæ, 6; tarsus, 11–12 (11.2); middle toe, 11–11.5 (11.1).^c

^aIn a series of thirteen adults of *P. f. fulva* from Cuba there is only one which has the throat and sides of head as deeply colored as in the average of the Jamaican series (of exactly equal number of specimens), and in this one the sides and flanks are not nearly as strongly rufescent as in the Jamaican specimen showing least of this color on those parts. The distinction, therefore, between the birds of this species from the two islands in question, while not absolutely constant, is so nearly so that the propriety of distinguishing them by name can not be seriously questioned.

^bSix specimens from Jamaica.

^cFour specimens from Jamaica.

Island of Jamaica, Greater Antilles; island of Porto Rico?^a
northern Yucatan?^b State of Chiapas, southern Mexico?^c

Hirundo pœciloma GOSSE, Birds Jamaica, 1847, 64.—OSBURN, Proc. Zool. Soc. Lond., 1865, 63 (Jamaica).

[*Hirundo*] *pœciloma* GRAY, Hand-list, i, 1869, 71, no. 837.

Petrochelidon pœciloma BAIRD, Review Am. Birds, May, 1865, 292 (Spanishtown, Jamaica).—GUNDLACH, Journ. für Orn., 1874, 311 (Porto Rico).

P[etrochelidon] fulva pœciloma RIDGWAY, Man. N. Am. Birds, 1887, 460, footnote (crit.).

Petrochelidon fulva (not *Hirundo fulva* Vieillot) SCLATER, Proc. Zool. Soc. Lond., 1861, 72 (Jamaica); Cat. Am. Birds, 1862, 40 (do.).—ALBRECHT, Journ. für Orn., 1862, 194 (Jamaica).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 228, part (Jamaica; n. Yucatan?; Panama?).—SHARPE, Cat. Birds Brit. Mus., x, 1885, 195, 635, part (Jamaica; Porto Rico; n. Yucatan?; Panama?).—CORY, Birds W. I., 1889, 71, part; Cat. W. I. Birds, 1892, 115, part (Jamaica; Porto Rico).—(?) BOUCARD, Proc. Zool. Soc. Lond., 1883, 442 (Yucatan).—SCOTT, Auk, ix, 1893, 81 (Jamaica).—FIELD, Auk, xi, 1894, 127 (Jamaica).—SHARPE and WYATT, Mon. Hirund., 1894, 561, 592, part, pl. 107.^d

[*Petrochelidon*] *fulva* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 14, part.

P[etrochelidon] fulva NEWTON (A. and E.), Handb. Jamaica, 1881, 107.

Hirundo fulva (not of Vieillot) MARCH, Proc. Ac. Nat. Sci. Philad., 1863, 295 (Jamaica; descr. nesting).—BRYANT, Proc. Bost. Soc. N. H., x, 1866, 222, 251 (Porto Rico).—GUNDLACH, Anal. Soc. Esp. Hist. Nat., vii, 1878, 198 (Porto Rico).

Hirundo melanogaster (not of Swainson) DENNY, Proc. Zool. Soc. Lond., 1847, 38 (Jamaica).

^a With only one adult from Porto Rico for comparison, the status of the bird from that island is doubtful. The specimen is not sexed. In coloration it seems to agree best with the Jamaican bird, though the plumage is rather worn, and therefore not satisfactory for comparison. Its measurements are as follows: Wing, 98.5; tail, 44; exposed culmen, 6.5; width of bill at frontal antæ, 5.5; tarsus, 11.5; middle toe, 11.5. The wing is shorter and the bill is smaller than in any specimen among the Jamaican series.

^b Four adults from northern Yucatan (Chichen Itza and Izamal) are similar to Jamaican specimens in coloration, but are still smaller, measuring as follows:

Adult male (two specimens).—Wing, 97–100 (98.5); tail, 43–44 (43.5); exposed culmen, 6.5–7 (6.7); width of bill at frontal antæ, 5.5–6 (5.7); tarsus, 11.5–12 (11.7); middle toe, 10.5–11 (11).

Adult female (two specimens).—Wing, 95–98 (96.5); tail, 43.5–45 (44.2); exposed culmen, 6.5–7 (6.7); width of bill at frontal antæ, 6.5–7 (6.7); tarsus, 11–12 (11.5); middle toe, 11.

^c A young bird from Ocozucuantla, Chiapas, in the Biological Survey collection (no. 143510, coll. U. S. Nat. Mus.; collected Aug. 20, 1895, by Nelson and Goldman), unquestionably belongs to one of the forms of *P. fulva*, but in the absence of a sufficient series of young birds for comparison, I am unable to determine which form it should be referred to. It closely resembles an example of *P. f. pallida*, from Miquihuana, Tamaulipas, and possibly belongs to that subspecies.

^d The figure, which is very badly colored, is from a Yucatan specimen.

PETROCHELIDON FULVA PALLIDA Nelson.

COAHUILA CLIFF SWALLOW.

Similar to *P. f. fulva* (from Cuba), but larger; rump decidedly paler (cinnamon-rufous instead of chestnut or deep cinnamon-rufous); brown central areas of under tail-coverts paler, and the sides and flanks pale grayish brown, more rarely and less strongly tinged or suffused with cinnamon-rufous.

Young.^a—Similar to the young of *P. f. fulva*, but rump paler (vinaceous-cinnamon instead of cinnamon-rufous), black of pileum and back duller, and sides of head paler.

Adult male.—Length (skin), 125; wing, 107; tail, 48; exposed culmen, 7; width of bill at frontal antiæ, 6.5; tarsus, 12; middle toe, 12.^b

Adult female.—Length (skins), 125–133 (129); wing, 106.5–110 (107.9); tail, 47–49.5 (48.6); exposed culmen, 7; width of bill at frontal antiæ, 6–6.5 (6.2); tarsus, 12–12.5 (12.1); middle toe, 12–12.5 (12.3).^c

Northeastern Mexico, in States of Coahuila (Saltillo, breeding) and Tamaulipas (Miquihuana).

Petrochelidon fulva pallida NELSON, Proc. Biol. Soc. Wash., xv, Oct. 10, 1902, 211 (Saltillo, Coahuila, n. e. Mexico; coll. U. S. Nat. Mus.).

Genus STELGIDOPTERYX Baird.

Stelgidopteryx BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 312 (Type, *Hirundo serripennis* Audubon).

Rather small Hirundinidæ (wing not more than 120 mm.) with nostrils roundish, opening superiorly; tarsus longer than middle toe without claw; middle toe united to outer toe by at least half its basal phalanx; tail nearly even (depth of its emargination less than length of exposed culmen); upper parts plain grayish brown, and outermost primary, in adult male, with the edge roughened by stiff recurved tips to the barbs.

Bill much depressed, moderately broad (width at frontal antiæ rather less than length of exposed culmen), the culmen straight to near tip where rather abruptly decurved, forming a slight hook to tip of maxilla; maxillary tomium nearly straight though obviously deflexed basally, the subterminal notch small though distinct. Nostrils opening superiorly, roundish, with visible membrane behind it but none above, except posteriorly. Rictal bristles small, scarcely projecting across commissure. Tail about half as long as wing, or less, slightly emar-

^aNo. 158851, coll. U. S. Nat. Mus. (Biological Survey collection), female, Miquihuana, Tamaulipas, June 8, 1898; Nelson and Goldman.

^bOne specimen.

^cFive specimens.

ginate (depth of emargination less than length of exposed culmen). Tarsus longer than middle toe (without claw), only the extreme upper portion (if any) feathered; middle toe united to outer toe by about half to nearly the whole of its basal phalanx, to the inner by about half the basal phalanx; claws of lateral toes scarcely reaching to base of middle claw; claws rather small, that of the hallux shorter than the digit.

Adult male with barbs of outer web of outermost primary stiffened and abruptly recurved at tip, causing a file-like roughness when the finger is drawn along the edge of the quill from base toward tip.

Coloration.—Above plain grayish brown (paler on the rump in some species), beneath paler grayish brown, becoming white on abdomen and posteriorly, the throat sometimes cinnamon or buffy and some species with a large blackish spot at end of longer tail-coverts.

Nidification.—Nest in holes of banks, more rarely of bridges or buildings, composed of soft grasses, feathers, etc.; eggs immaculate white.

Range.—Warm-temperate, and tropical continental America. (Several species.)

In the roughened edge of the outermost primary this genus agrees with *Psalidoprocne* Cabanis, of western and southern Africa, but in other respects is so exceedingly dissimilar that I seriously doubt their close relationship, notwithstanding Dr. Sharpe has placed them together in a "subfamily," *Psalidoproceninae*, entirely apart from other Swallows.

KEY TO THE SPECIES AND SUBSPECIES OF STELGIDOPTERYX.

- a. Tertiaries without cinnamomeous margins. (Adults.)
 - b. Under tail-coverts entirely white.
 - c. Pileum not distinctly darker than back; tertiaries without white margins; chin and throat pale brownish gray. (Greater part of United States and southward to Costa Rica.) *Stelgidopteryx serripennis*, adults (p. 58)
 - cc. Pileum distinctly darker than back; tertiaries margined with white; chin and throat pale cinnamon or cinnamon-buff. (Southwestern Mexico to Chiriqui.)
Stelgidopteryx salvini, adults (p. 62)
 - bb. Under tail-coverts not entirely white, the two longer feathers having a terminal or subterminal spot of dusky or blackish.
 - c. Rump concolor with back, the latter very dark sooty grayish brown; chin and throat pale brownish gray, concolor with chest and sides. (Tabasco and Yucatan, southeastern Mexico; eastern Guatemala.)
Stelgidopteryx ridgwayi, adults (p. 61)
 - cc. Rump pale brownish gray or whitish, very different from grayish brown of back; chin and throat pale cinnamon or cinnamon-buff. (Costa Rica to Colombia, Venezuela, and Trinidad.)
Stelgidopteryx ruficollis ^a *uropygialis*, adults (p. 63)

^a *Stelgidopteryx ruficollis ruficollis* belongs to southern Brazil, etc., and differs from *S. r. uropygialis* in having the rump concolor with the back, and in larger size. The South American bird varies considerably according to geographic area, and undoubt-

aa. Tertiials broadly margined with cinnamomeous or dull rusty. (Young.)

b. Rump concolor with back.

c. Darker *Stelgidopteryx ridgwayi*, young (p. 61)

cc. Lighter *Stelgidopteryx serripennis*, young (p. 58)

Stelgidopteryx salvini, young (p. 62)

bb. Rump pale grayish or dull whitish, conspicuously different from color of back.

Stelgidopteryx ruficollis uropygialis, young (p. 63)

STELGIDOPTERYX SERRIPENNIS (Audubon).

ROUGH-WINGED SWALLOW.

Adults (sexes alike).—Above, including sides of head and neck, plain grayish brown (deep hair brown), of very nearly uniform tone throughout, but pileum slightly darker than rump, the remiges and rectrices, however, decidedly darker than other parts;^a chin, throat, chest, sides, and flanks plain pale grayish hair brown or brownish gray, the chin and throat^b usually somewhat paler than chest and sides; rest of under parts white, including whole of under tail-coverts; under wing-coverts and axillars light grayish brown or brownish gray (intermediate in shade between color of back and that of chest), the marginal coverts with paler tips; bill black; iris brown; legs and feet dusky horn color or blackish.

Young.—Similar to adults, but upper parts more or less washed or overlaid by pale cinnamon or fawn color, the wing-coverts being broadly tipped and the tertiials broadly margined (except on inner webs) with the same; chin, throat, and chest (sometimes sides and flanks also) more or less strongly tinged with paler cinnamon or fawn color.

Adult male.—Length (skins), 112–133 (123.2); wing, 104–118 (110.7), tail, 47–55 (50.4); exposed culmen, 5–7 (6.1); width of bill at frontal antixæ, 4–6 (5.2); tarsus, 10–12 (11); middle toe, 9–11 (9.9).^c

Adult female.—Length (skins), 108–124 (117); wing, 99–113 (104);

edly requires subdivision. The bird from Guiana, for example, is like the Colombian form except that the rump is much darker, nearly concolor with the back.

Hirundo ruficollis Vieillot, Nouv. Dict. d'Hist. Nat., xiv, 1817, 523 (Paraguay).

Stelgidopteryx ruficollis Baird, Review Am. Birds, May, 1865, 315, footnote (Brazil).

Stelgidopteryx ruficollis ruficollis Bangs, Proc. New Engl. Zool. Club, ii, July 31, 1901, 58 (La Plata region, Brazil, and Bolivia; descr.).

Hirundo jugularis Maximilian, Reise Bras., i, 1820, 345 (Brazil; type now in coll. Am. Mus. Nat. Hist.).—Temminck, Pl. Col., iv, pl. 161, fig. 2.

H[irundo] flavigastera D'Orbigny and Lafresnaye, Mag. de Zool., 1839 (Synopsis Avium, 69) (Corrientes, Argentina).

^aThe under surface of the tail shows a more or less marked, almost abrupt, contrast between the brownish gray of the basal two-thirds (more or less) and the dusky terminal portion.

^bSome specimens show a tinge of pale cinnamon or buffy on chin and upper throat. This is possibly a remnant of the immature plumage, characterizing birds in their second year.

^cThirty-two specimens.

tail, 43-52 (47.5); exposed culmen, 6-8 (6.7); width of bill at frontal antiaë, 5-6 (5.1); tarsus, 11-12 (11.3); middle toe, 9-11 (9.9).^a

Temperate North America, Mexico, and Central America as far as Costa Rica; breeding north to Connecticut (Stamford, Norwich, New London, near Gales Ferry, etc.), central Massachusetts (Berkshire County), southeastern New York (Orange, Greene, and Ulster counties, Shelter Island), Ontario (Hamilton), northern Indiana (Carroll and Wabash counties), southern Wisconsin (Racine), southern Minnesota, North Dakota, Montana, and British Columbia (Vancouver Island), south to Georgia, Louisiana, Texas, etc., and over greater part of Mexico, as far as State of Vera Cruz (Jalapa, etc.^b); casual northward to northern Michigan (Mackinac Island) and Manitoba (Winnipeg); in winter southward through Central America to Costa Rica, occasionally wintering on coast of South Carolina.

Hirundo serripennis AUDUBON, Orn. Biog., iv, 1838, 593 (Charleston, South Carolina; type in coll. U. S. Nat. Mus.); Synopsis, 1839, 37; Birds Am., oct. ed., i, 1840, 193, pl. 51.—VAN FLEET, Bull. Nutt. Orn. Club, i, 1876, 9 (nesting habits, etc.).

[*Hirundo*] *serripennis* BOIE, Isis, 1844, 170.

[*Cotyle*] *serripennis* BONAPARTE, Consp. Av., i, 1850, 342.

Cotyle serripennis CASSIN, Cat. Hirund. Mus. Philad. Acad., 1853, 11; Illustr. Birds Cal., Tex., etc., 1855, 247.—SCLATER, Proc. Zool. Soc. Lond., 1856, 285 (Cordova, Vera Cruz); Cat. Am. Birds, 1862, 41 (Orizaba, Vera Cruz).—NEWBERRY, Rep. Pacific R. R. Surv., vi, 1857, 79 (California and n. to Columbia R.).—BREWER, N. Am. Ool., 1857, 106, pl. 4, fig. 50.—BAIRD, Rep. Pacific

^a Twenty-six specimens.

Specimens from different geographic areas average respectively as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Width of bill at frontal antiaë.	Tarsus.	Middle toe.
MALES.						
Ten adult males from east of Missouri River.....	108.8	49.9	6.3	5.2	10.9	10
Ten adult males from west of Missouri River.....	109.7	49.9	6	5.1	11.2	10.2
Six adult males from eastern Mexico.....	114.2	51.5	6.4	5.1	10.7	9.8
Five adult males from western Mexico.....	111.2	50.6	6.6	5.4	11	9.2
One adult male from Costa Rica.....	115	53	.....	5	11	9
FEMALES.						
Ten adult females from east of Missouri River....	102.7	47.5	6.9	5.6	11.6	9.8
Nine adult females from west of Missouri River..	104.2	46.9	6.4	5.1	11.4	10
Five adult females from eastern Mexico.....	107.6	49	6.7	5.2	10.6	10
Two adult females from Guatemala.....	108	46.5	7	5	11	10

I am not able to discover any difference of coloration in the above series, but many young birds from the eastern United States appear to be less strongly washed with cinnamon, both above and below (sometimes with none on under parts), and the margins to tertials much paler cinnamonaceous. The difference is by no means constant, however, the variation being considerable in either series.

^b Breeding records from Guatemala and Costa Rica doubtless pertain to *S. salvini*, which see (p. 62).

R. R. Surv., ix, 1858, 313, 927; Cat. N. Am. Birds, 1859, no. 230; Rep. U. S. and Mex. Bound. Surv., ii, pt. 2, 1859, 11 (Nuevo Leon, Mexico).—KENNERLY, Rep. Pacific R. R. Surv., x, 1859, 24 (Colorado R., Arizona).—HEERMANN, Rep. Pacific R. R. Surv., x, 1859, 36 (San Antonio, Texas, breeding; habits).—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. 2, 1860, 186 (Washington and Oregon).—LORD, Proc. Roy. Art. Inst., iv, 1864, 116 (British Columbia).—BROWN, Ibis, 1868, 421 (Vancouver I.).—HOY, Proc. Ac. Nat. Sci. Philad., xii, 1869, 400 (Racine, Wisconsin, breeding).—COOPER, Orn. Cal., 1870, 110.—SNOW, Birds Kansas, 1873, 5.—ALLEN, Proc. Bost. Soc. N. H., xvii, 1874, 54 (North Dakota).

[*Cotile*] *serripennis* GRAY, Hand-list, i, 1869, 73, no. 867.

Stelgidopteryx serripennis BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 312.—RIDGWAY, Ann. Lyc. N. Y., ix, 1874, 370 (Illinois); Man. N. Am. Birds, 1887, 463.—NELSON, Bull. Essex Inst., viii, 1876, 102, 152 (n. e. Illinois; rare summer visit.; breeding?).—COUES, key N. Am. Birds, 2d ed., 1884, 324.

Stelgidopteryx serripennis BAIRD, Review Am. Birds, May, 1865, 314.—COUES, Proc. Ac. Nat. Sci. Philad., 1866, 72 (Fort Whipple, Arizona); Check List, 1873, no. 116; 2d ed., 1882, no. 164; Birds N. W., 1874, 90; Birds Col. Val., 1878, 438.—SCHMIDT, Mem. Bost. Soc. N. H., i, 1869, 547 (Vera Cruz).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 350, pl. 16, fig. 12.—YARROW and HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 11 (Utah; Nevada).—BREWSTER, Ann. Lyc. N. Y., xi, 1875, 139 (Ritchie Co., West Virginia; habits, flight, etc.); Bull. Mus. Comp. Zool., xli, 1902, 170 (San José del Cabo, Lower California, Aug. 23–28).—HENSHAW, Zool. Exp. W. 100th Merid., 1875, 219 (Provo and Fairfield, Utah; e. Nevada; Denver and Pueblo, Colorado; Zufri, New Mexico; habits); Rep. Orn. Spec., Wheeler's Surv., 1876, 235 (Santa Barbara, California, June; Fort Tejon, Aug.).—RIDGWAY, Bull. Essex Inst., vii, 1875, 30 (Salt Lake Valley, Utah); Orn. 40th Parallel, 1877, 446 (Carson City, Nevada; Salt Lake City and Weber R., Utah); Nom. N. Am. Birds, 1881, no. 158; Orn. Illinois, i, 1889, 212.—PURDIE, Bull. Nutt. Orn. Club, ii, 1877, 21 (Suffield, Conn.; 1 spec.).—MEARNS, Bull. Nutt. Orn. Club, iii, 1878, 46 (West Point, New York, breeding).—BICKNELL, Bull. Nutt. Orn. Club, iii, 1878, 130 (Riverdale, New Jersey, breeding).—LANGDON, Birds Cincinnati, 1877, 7 (common summer resid.).—LOOMIS, Bull. Nutt. Orn. Club, iv, 1879, 213 (Chester Co., South Carolina, summer resid.).—BERIER, Bull. Nutt. Orn. Club, vi, 1881, 126 (New Utrecht, Long Island, 1 spec., Apr. 19).—NEHRING, Bull. Nutt. Orn. Club, vii, 1882, 12 (s. e. Texas, breeding); Our Native Birds, etc., i, 1893, 360.—BECKHAM, Bull. Nutt. Orn. Club, vii, 1882, 162 (Bayou Sara, Louisiana, breeding); Proc. U. S. Nat. Mus., x, 1888, 682 (San Antonio, Texas, breeding; also Feb. and Mar.).—BAILEY, Bull. Nutt. Orn. Club, viii, 1883, 39 (St. Simons I., Georgia, breeding).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 237, part.—AGERSBORG, Auk, ii, 1885, 279 (s. e. South Dakota, breeding).—BUTLER, Bull. Brookv. Soc. N. H., no. 2, 1886, 33 (Franklin Co., Indiana, common summer resid.).—SHARPE, Cat. Birds Brit. Mus., x, 1885, 206, 636.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 617.—MERRILL, Auk, v, 1888, 360 (Fort Klamath, Oregon, breeding).—EVERMANN, Auk, vi, 1889, 26 (Carroll Co., Indiana, breeding).—CHAPMAN, Bull. Am. Mus. N. H., iii, 1890, 149 (British Columbia; crit.); x, 1898, 27 (Jalapa, Vera Cruz, breeding).—GOSS, Hist. Birds Kansas, 1891, 509 (summer resid.).—LAWRENCE (R. H.), Auk, ix, 1892, 356 (Grays Harbor, Washington, breeding).—SARGENT, Auk, x, 1893, 369 (Shelter I., New York, breeding).—THOMPSON, Auk, x, 1893, 50 (near Winnipeg, Manitoba; 1 spec.).—WHITE, Auk, x, 1893, 227 (Mackinac I., Michigan, 1 spec., July).—SHARPE and WYATT,

- Mon. Hirund., 1894, 635, 653, part, pl. 125, upper fig. only (= young).—RICHMOND and KNOWLTON, Auk, xi, 1894, 308 (Gallatin Valley, Montana, Aug.).—McILWRAITH, Birds Ontario, 1894, 341 (Hamilton, breeding).—PORTER, Auk, xii, 1895, 86 (Stamford, Connecticut, breeding).—WAYNE, Auk, xii, 1895, 184 (coast South Carolina, Dec. 22, 1894).—FAXON, Auk, xii, 1895, 392 (Berkshire Co., Massachusetts, breeding).—ULREY and WALLACE, Proc. Ind. Ac. Sci., 1895, 155 (Wabash, Indiana).—CHUBB, Auk, xiv, 1897, 408 (Greene and Ulster counties, New York, breeding).—HOWE, Auk, xvii, 1900, 389 (near Gales Ferry, Connecticut, breeding).—HILL, Auk, xix, 1902, 93 (New London, White R. Junction, Gales Ferry, near Norwich, Poquonock, etc., Connecticut, breeding).—RATHBUN (S. F.), Auk, xix, 1902, 138 (Seattle, Washington, breeding).^a
- [*Stelgidopteryx serripennis* COUES, Key N. Am. Birds, 1872, 114.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 15.
- Stelgidopteryx ruficollis serripennis* BANGS, Proc. New Engl. Zool. Club, ii, July 31, 1901, 60 (descr.; crit.).—GRINNELL (J.), Pacific Coast Avifauna, no. 3, 1902, 61.
- Cotyle fulvipennis* SCLATER, Proc. Zool. Soc. Lond., 1859, 364 (Jalapa, Vera Cruz, Mexico; coll. P. L. Sclater; = young); Cat. Am. Birds, 1862, 41 (Jalapa).
- [*Cotile*] *fulvipennis* GRAY, Hand-list, i, 1869, 73, no. 869.
- Stelgidopteryx fulvipennis* BAIRD, Review Am. Birds, May, 1865, 316, part (Orizaba and Jalapa, Vera Cruz).—SUMICHRIST, Mem. Bost. Soc. N. H., i, 1869, 547 (Vera Cruz).—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1888, 139 (Jalapa, Vera Cruz).
- [*Stelgidopteryx*] *fulvipennis* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 15.
- Stelgidopteryx ruficollis fulvipennis* BANGS, Proc. New Engl. Zool. Club, ii, July 31, 1901, 59, part (s. Mexico).
- (?) *Cotyle flavigaster* (not of Gray) SCLATER, Proc. Zool. Soc. Lond., 1857, 212 (Orizaba, Vera Cruz).

STELGIDOPTERYX RIDGWAYI Nelson.

YUCATAN ROUGH-WINGED SWALLOW.

Similar to *S. serripennis*, but decidedly larger, very much darker above, and longest under tail-coverts with the exposed portion dusky or blackish.

Adults (sexes alike).—Above dark grayish brown or sooty (very much darker than in *S. serripennis*) approaching clove brown on pileum, the remiges and rectrices sooty blackish; chin and throat pale brownish gray or grayish white; chest, sides of breast, sides, flanks, axillars, and under wing-coverts deeper brownish gray (darker than in *S. serripennis*); rest of under parts white, the exposed portion of two longest under tail-coverts abruptly dark sooty or sooty blackish; bill black; legs and feet dark brown color or brownish black.

Young.—Similar to adults, but wing-coverts tipped and tertials broadly margined with dull rusty or cinnamon, and sides of throat and median portion of chest light cinnamon or dull cinnamon-buff, the sides and flanks tinged with the same.^a

^a Described from a Guatemalan specimen in the collection of the Kent Scientific Institute, Grand Rapids, Michigan. A specimen from Merida, Yucatan, in the National Museum collection (no. 39264, A. Schott), is very similar.

Adult male.—Length (skin), 134; wing, 116; tail, 56; exposed culmen, 8; width of bill at frontal antiae, 6; tarsus, 12; middle toe, 10.^a

Adult female.—Length (skins), 115–133 (124.7); wing, 100–111 (106.4); tail, 49–54 (51.4); exposed culmen, 6–7.5 (6.9); width of bill at frontal antiae, 5–6 (5.8); tarsus, 11–12 (11.7); middle toe, 10–11 (10.6).^b

Southeastern Mexico, in States of Tabasco (Teapa), Yucatan (Chichen Itza; Izalam; Calcehtok; Merida), and adjacent districts of Guatemala.

Stelgidopteryx fulvipennis (not *Cotyle fulvipennis* Sclater) LAWRENCE, Ann. Lyc. N. Y., ix, 1869, 200 (Merida, Yucatan).

Stelgidopteryx serripennis (not *Hirundo serripennis* Audubon) SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 237, part (Merida, Yucatan).—BOUCARD, Proc. Zool. Soc. Lond., 1883, 442 (Yucatan).—SHARPE and WYATT, Mon. Hirund., 1894, 635, part (Yucatan).—CHAPMAN, Bull. Am. Mus. N. H., viii, 1896, 278 (Chichen Itza, Yucatan).

Stelgidopteryx ridgwayi NELSON, Proc. Biol. Soc. Wash., xiv, Sept. 25, 1901, 174 (Chichen Itza, Yucatan; coll. U. S. Nat. Mus.).

STELGIDOPTERYX SALVINI, new species.^c

SALVIN'S ROUGH-WINGED SWALLOW.

Similar to *S. serripennis*, but pileum distinctly darker than back, tertials conspicuously margined with white, and chin and throat pale cinnamon or cinnamon-buff.

Adult male.—Length (skins), 113–120 (115.7); wing, 106–110 (108); tail, 48–52 (49.4); exposed culmen, 6.5–7 (6.8); width of bill at frontal antiae, 5–6 (5.4); tarsus, 10–11 (10.1); middle toe, 10.^d

Southwestern Mexico (La Barca, Jalisco) and Guatemala (Dueñas) to Chiriqui (Divala).

This form resembles *S. ruficollis uropygialis* in its pale cinnamon chin and throat (though the color is hardly so deep), dusky pileum, and whitish margins to tertials, but differs in having the rump concolor with the back and in lacking any dusky spot at end of longest under tail-coverts. Its characters are, therefore, intermediate between those of *S. serripennis* and *S. ruficollis uropygialis*; but since the Mexican and Guatemalan specimens are precisely like two from Chiriqui (Divala) and one from Costa Rica (Atiro), I believe it to be distinct from both the forms named. A young bird (from Costa Rica), which I take to be of this form, is indistinguishable from young examples of *S. serripennis* and therefore very different from the corresponding age of *S. ruficollis uropygialis*.

^a Measurements of the type, no. 167947, coll. U. S. Nat. Mus. (Biol. Surv. coll.), Chichen Itza, Yucatan, Jan. 29, 1901; Nelson and Goldman.

^b Six specimens.

^c Type, No. 30716, coll. U. S. Nat. Mus., adult male, Dueñas, Guatemala, Oct. 17, 1859; O. Salvin.

^d Four specimens.

Cotyle fulvipennis (not of Sclater, 1859) SALVIN and SCLATER, Ibis, 1880, 31 (Dueñas, Guatemala).

Stelgidopteryx fulvipennis BAIRD, Review Am. Birds, 1865, 316, part (Dueñas, Guatemala).

(?) *Stelgidopteryx fulvipennis* SALVIN, Ibis, 1870, 109, 114 (Costa Rica); Proc. Zool. Soc. Lond., 1870, 184 (Calovevora, Veragua).—BOUCARD, Proc. Zool. Soc. Lond., 1878, 67 (San José, Costa Rica, Mar. to May).

(?) *Stelgidopteryx ruficollis fulvipennis* BANGS, Proc. New Engl. Zool. Club, ii, July 31, 1901, 59, part (Guatemala; description).

Stelgidopteryx fulvigula (not of Baird) LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 96 (Atiro, Costa Rica).

- *Cotyle serripennis* (not *Hirundo serripennis* Audubon) SCLATER and SALVIN, Ibis, 1859, 13, 136 (Dueñas, Guatemala; resident).

(?) *Cotyle serripennis* OWEN, Ibis, 1861, 61 (San Gerónimo, Guatemala, breeding; descr. eggs).

(?) *Stelgidopteryx serripennis* (not *Hirundo serripennis* Audubon) SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 237, part (Calovevora, Veragua; San Gerónimo, Rio Dulce, Coban, Retalhuleu, San José, etc., Guatemala).—SHARPE, Cat. Birds Brit. Mus., x, 1885, 206, part (Coban, Guatemala).—ZELEDON, Anal. Mus. Nac. Costa Rica, i, 1887, 107 (Costa Rica).—CHERRIE, Auk, vii, 1890, 335 (San José, Costa Rica; very common during rainy season); ix, 1892, 22 (San José, Costa Rica, breeding abundantly).

Stelgidopteryx serripennis SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 237, part (Atiro, Costa Rica; Dueñas, Guatemala).—SHARPE and WYATT, Mon. Hirund., 1894, 635, 653, part, pl. 125, lower fig. (= adult).

STELGIDOPTERYX RUFICOLLIS UROPYGIALIS (Lawrence).

PANAMA ROUGH-WINGED SWALLOW.

Similar to *S. salvini*, but rump conspicuously paler than back and longest under tail-coverts with a large terminal or subterminal spot of dusky or blackish.

Adults (sexes alike).—Pileum very dark sooty grayish brown or sooty black; hindneck, back, and scapulars paler sooty grayish brown; rump pale brownish gray, pale grayish brown or dull whitish, in strong but not abrupt contrast with much darker color of back, etc.; upper tail-coverts dusky grayish brown margined with paler; wings and tail sooty blackish, the tertials distinctly margined or edged with white or pale grayish; chin and throat cinnamon-buff, ochraceous-buff, cinnamon, or pale russet; chest, sides of breast, sides, flanks, axillars and under wing-coverts pale grayish brown; rest of under parts white, the abdomen usually more or less strongly tinged with pale yellow, sometimes decided primrose or almost naples yellow; two longer under tail-coverts with exposed portion dusky or blackish, usually margined or tipped with white or at least with a subterminal spot of dusky;^a bill black; iris brown; legs and feet black or dusky horn color.

Young.—Similar to adults, but general color of upper parts more sooty and broken by more or less distinct terminal margins to the

^a Sometimes the next longer coverts have a smaller dusky subterminal spot on outer web.

feathers of dull rusty or cinnamon, these very broad and conspicuous on tertials and greater wing-coverts; pale rump-patch also more or less tinged with pale cinnamon or cinnamon-buff; cinnamon color of chin and throat (usually deeper than in adults) extending over chest and sides of breast and strongly tinging sides and flanks.

Adult male.—Length (skins), 110–127 (118.5); wing, 103–114 (108); tail, 47–54 (50); exposed culmen, 6–7.5 (6.9); width of bill at frontal antiae, 5–6 (5.1); tarsus, 10–11 (10.1); middle toe, 8.5–10.5 (9.6).^a

Adult female.—Length (skins), 111–126 (117.8); wing, 95–104 (100.5); tail, 46–51.5 (48.8); exposed culmen, 6–7.5 (6.8); width of bill at frontal antiae, 4.5–6 (5.4); tarsus, 10–11 (10.3); middle toe, 9–11 (9.8).^b

Eastern Nicaragua (Rio Escondido) and Costa Rica (Angostura; Rio Frio) southward through Colombia to western Ecuador (Babahoyo; Chimbo; Esmeraldas; Vines; Yaguachi), Venezuela (La Pricion), and Trinidad.

Cotyle flavigaster (not *Hirundo flavigaster* Vieillot) CASSIN, Proc. Ac. Nat. Sci. Philad., 1860, 133 (Panama R. R.).—SCLATER, Proc. Zool. Soc. Lond., 1860, 274 (Babahoyo, w. Ecuador).—LAWRENCE, Ann. Lyc. N. Y., vii, 1862, 317 (Panama R. R.).

Cotyle ruficollis (not *Hirundo ruficollis* Vieillot) SCLATER, Proc. Zool. Soc. Lond., 1860, 292 (Esmeraldas, w. Ecuador); Cat. Am. Birds, 1862, 41.

Cotyle uropygialis LAWRENCE, Ibis, April, 1863, 181 (Panama R. R.; coll. G. N. Lawrence); Ann. Lyc. N. Y., viii, 1863, 3, 481.—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 348 (Panama R. R.).—LÉOTAUD, Ois. Trinidad, 1866, 94.

[*Cotile*] *uropygialis* GRAY, Hand-list, i, 1869, 73, no. 870.

Stelgidopteryx uropygialis BAIRD, Review Am. Birds, May, 1865, 317 (Isthmus Panama).—SALVIN, Proc. Zool. Soc. Lond., 1870, 184 (Chitra, Veragua); Ibis, 1870, 109 (Costa Rica).—WYATT, Ibis, 1870, 184 (Colombia).—SCLATER and

^a Eighteen specimens.

^b Ten specimens.

Specimens from different localities average, respectively, as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Width of bill at frontal antiae.	Tarsus.	Middle toe.
MALES.						
Three adult males from Costa Rica.....	107	48	7	5	10	10
Seven adult males from Panama	108.1	51.8	6.7	5.1	10	9.5
Three adult males from Santa Marta, Colombia..	106.8	50.2	6.7	5	10.3	9.7
Four adult males from Trinidad.....	109.5	50.9	7.5	5.8	10.1	9.6
FEMALES.						
Three adult females from Costa Rica.....	98.7	47.8	6.7	5.8	10.8	10
Three adult females from Santa Marta, Colombia..	102	49.2	6.8	4.8	10.2	9.8
Three adult females from Trinidad.....	102.2	50.8	7	5.8	10.2	9.8

I am unable to appreciate any constant difference between specimens from the above-mentioned localities. Examples from Guiana have the rump much darker and should be separated as belonging to a different form.

- SALVIN, Proc. Zool. Soc. Lond., 1879, 496 (Remedios, province Antioquia, Colombia).—TACZANOWSKI, Proc. Zool. Soc. Lond., 1877, 744 (Lechugal, w. Peru).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 238, part (Angostura, Costa Rica; Chitra, Veragua; Obispo station, Panama R. R.; Rio Truando, Colombia).—BERLEPSCH and TACZANOWSKI, Proc. Zool. Soc. Lond., 1883, 543 (Chimbo, w. Ecuador; crit.).—TACZANOWSKI and BERLEPSCH, Proc. Zool. Soc. Lond., 1885, 75 (Yaguachi, Ecuador).—SHARPE, Cat. Birds Brit. Mus., x, 1885, 209, part, 637 (Costa Rica; Chitra, Veragua; Panama; Bogota and Santa Elena, Colombia; Esmeraldas and Babahoyo, w. Ecuador; Venezuela).—ZELEDON, Anal. Mus. Nac. Costa Rica, i, 1887, 107 (Panama; Costa Rica).—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 486 (Rio Frio, Costa Rica; Rio Escondido, Nicaragua).—SHARPE and WYATT, Mon. Hirund., 1894, 651, 655, part, pl. 127.—CHAPMAN, Bull. Am. Mus. N. H., vi., 1894, 28 (Trinidad).—BANGS, Proc. Biol. Soc. Wash., xii, 1898, 142 (Santa Marta, Colombia).—SALVADORI and FESTA, Boll. Mus. Zool., etc., Torino, xv, no. 357, 1899, 11 (Vinces, w. Ecuador).—ALLEN, Bull. Am. Mus. N. H., xiii, 1900, 171 (Bonda, Santa Marta, Colombia).
- [*Stelgidopteryx*] *guthuralis* BAIRD, Review Am. Birds, May, 1865, 314 (= *S. fulvigula*, p. 318).
- [*Stelgidopteryx*] *uropygialis* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 15.
- Stelgidopteryx ruficollis uropygialis* BANGS, Proc. New Engl. Zool. Club, ii, July 31, 1901, 59 (Panama; Chiriqui; Costa Rica; descr.); Auk, xviii, 1901, 368 (Divala, Chiriqui).—BERLEPSCH and HARTERT, Novit. Zool., ix, 1902, 15 (La Pricion, Caura R., Venezuela).
- Stelgidopteryx fulvigula* BAIRD, Review Am. Birds, May, 1865, 318 (Angostura, Costa Rica; coll. U. S. Nat. Mus.; = juv.).—FRANTZIUS, Journ. für Orn., 1869, 295 (Costa Rica).—SALVIN, Ibis, 1869, 313, in text (crit.; refers it to *S. fulvipennis* Sclater); 1874, 307 (crit.; refers it to *S. uropygialis*).
- [*Cotile*] *fulvigula* GRAY, Hand-list, i, 1869, 73, no. 871.
- Stelgidopteryx ruficollis æqualis* BANGS, Proc. New Engl. Zool. Club, ii, July 31, 1901, 58 (Santa Marta, Colombia; coll. A. E. and O. Bangs).

Genus NOTIOCHELIDON Baird.

Notiochelidon BAIRD, Review Am. Birds, May, 1865, 270, 305, 306. (Type, *Atticora pileata* Gould.)

Small Hirundinidæ (wing not more than 95 mm.) with nostrils small, roundish, opening superiorly; tarsus longer than middle toe, without claw; tail more than half as long as wing, forked for about one-third its length; middle toe united to outer by the whole of its basal and about half its subbasal phalanx; back sooty brown, deepening into sooty black on wings and tail, the pileum and sides of head glossy black, the abdomen white.

Bill very short, but relatively rather deep, its depth at gonydeal angle much greater than half its width at base; exposed culmen much less than distance from nostril to eye, slightly less than half the length of tarsus, straight basally, strongly decurved terminally; gonys nearly straight, ascending terminally, its basal angle prominent; maxillary tomium with subterminal notch minute but distinct. Nostril small, roundish or broadly ovate (the posterior end narrower), opening superiorly, with membrane broader below than above. Tail more than

half as long as wing (longer than distance from bend of wing to tip of longest secondaries), forked for about one-third its length, the lateral rectrices tapering terminally, with tip narrow but rounded. Tarsus longer than middle toe without claw, entirely naked, even to the tibio-tarsal joint; middle toe united to outer by whole of basal and about half its subbasal phalanx, to the inner by about half the basal phalanx; lateral claws not reaching to base of middle claw.

Coloration.—Pileum and sides of head glossy black, back sooty brown; wings and tail sooty black; sides and flanks sooty brown, under tail-coverts sooty black; rest of under parts white, the throat spotted with dusky.

Nidification.—(Unknown.)

Range.—Guatemala. (Monotypic.)

NOTIOCHELIDON PILEATA (Gould).

COBAN SWALLOW.

Adults (sexes alike).—Pileum, hindneck, and side of head and neck uniform glossy black with a faint bluish luster; back and scapulars plain grayish brown (dark hair brown to sepia), becoming darker on rump and deepening into sooty black or dark sooty brown on upper tail-coverts; lesser wing-coverts glossy black or brownish black; rest of wings brownish black, fading into dark grayish brown or sooty on secondary and innermost greater wing-coverts; tail dull black or sooty black; malar region, chin, and throat white, spotted or flecked with sooty brown; median portion of chest, breast, and abdomen uniform white; sides of chest, sides, flanks, axillars, and under wing-coverts plain grayish brown; under tail-coverts sooty black or very dark sooty brown; bill black; legs and feet dusky brown (in dried skins).

Adult male.—Length (skins), 121–123 (122); wing, 94–96 (95); tail, 53–54 (53.5), forked for 17–20 (18.5); exposed culmen, 5; tarsus, 10; middle toe, 8.5.^a

Adult female.—Length (skin), 117; wing, 94; tail, 53, forked for 20; exposed culmen, 5; tarsus, 10; middle toe, 9.^b

Highlands of Guatemala (Coban, Quiché, Totonicapam, Quezaltenango, Barranca de los Chocoyos, Calderas, ridge above Barsinas, Villa Lobos, Aceytuno, Volcan de Santa Maria, etc.).

Atticora pileata GOULD, Proc. Zool. Soc. Lond., xxvi, July 13, 1858, 355 (Guatemala; coll. J. Gould).—SCLATER and SALVIN, Ibis, 1859, 13 (Guatemala).—BAIRD, Review Am. Birds, 1865, 307 (Coban, Guatemala).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 230, pl. 15, fig. 2 (Coban, Quiché, Totonicapam, Quezaltenango, Barranca de los Chocoyos, Calderas, ridge above Barsinas, Villa Lobos, and Aceytuno, Guatemala).—SHARPE, Cat. Birds Brit. Mus., x, 1885, 188, 635.—SHARPE and WYATT, Mon. Hirund., 1894, 513, 518, pl. 100.

[*Atticora*] *pileata* GRAY, Hand-list, i, 1869, 72, no. 860.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 14.

^a Two specimens.

^b One specimen.

Genus NEOCHELIDON Sclater.

Neochelidon SCLATER, Cat. Am. Birds, 1862, p. xvi. (Type, *Petrochelidon tibialis* Cassin.)

Microchelidon (not of Reichenbach, 1853) SCLATER, Cat. Am. Birds, 1862, 39. (Type, *Petrochelidon tibialis* Cassin.)

Very small Hirundinidæ (wing about 87 mm.) with the small, roundish nostrils opening superiorly; tarsus longer than middle toe (without claw); middle toe united to outer by whole of its basal and nearly all of its subbasal phalanx, and to inner toe by all or nearly all of its basal phalanx; tail shorter than distance from bend of wing to tip of longest secondaries, forked for about one-fourth its length; tibial feathers much developed, entirely concealing tibio-tarsal joint; coloration sooty black above, sooty brown beneath, the tibial plumes white.

Bill very small (length from nostril only about half distance from nostril to eye); exposed culmen about equal to basal width of bill, about half as long as tarsus, decidedly curved from base; gonys slightly convex, without distinct basal angle; maxillary tomium nearly straight, the subterminal notch distinct. Nostrils small, roundish or ovate, opening superiorly, with little of membrane visible below (scarcely any above) posterior portion. Rictal bristles minute, nearly obsolete. Tail about half as long as wing, forked for about one-fourth its length, the width of lateral rectrices not decreasing till near the end, where rather abruptly contracted, the tips obtusely pointed. Tarsus longer than middle toe (without claw), the upper portion hidden by the unusually developed tibial feathers; middle toe united to outer by the whole of its basal and nearly all of its subbasal phalanx, to the inner toe by all, or nearly all, its basal phalanx; claws of lateral toes scarcely reaching to base of middle claw.

Coloration.—Sooty blackish above, paler sooty on rump; under parts plain sooty brown, the thighs white.

Nidification.—Nest in hole in bank, composed of fine grasses, etc.; eggs unknown.

Range.—Isthmus of Panama to Peru. (Monotypic.)

The single known species of this genus bears a remarkably close resemblance in coloration and general appearance to some of the smaller species of *Chætura*.

NECCHHELIDON TIBIALIS (Cassin).

WHITE-THIGGED SWALLOW.

Adults (sexes alike).—Above sooty black, becoming sooty grayish brown on rump, the wings and tail hardly so dark as back and pileum; beneath plain sooty grayish brown, the tibial feathers white, in conspicuous contrast; bill, legs, and feet brownish black; length (skins),

100–105 (101.7); wing, 82–87 (85); tail, 38–43 (41.3), forked for 7–11 (9.3); exposed culmen, 4.5; tarsus, 9–9.5 (9.2); middle toe, 7–8 (7.7).^a

Isthmus of Panama and southward to western Ecuador (Chimbo) and Peru (Cosnipata).

Petrochelidon ? tibialis CASSIN, Proc. Ac. Nat. Sci. Philad., vi, 1853, 370 ("Brazil;" coll. Ac. Nat. Sci. Philad.); Cat. Hirund. Mus. Philad. Acad., 1853, 6.

Microchelidon tibialis SCLATER, Cat. Am. Birds, 1862, 39 ("Brazil").

Neochelidon tibialis SCLATER, Cat. Am. Birds, 1862, p. xvi, errata.—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 347 (Panama R. R.); 1869, 597 (Cosnipata, e. Peru).

Atticora tibialis BAIRD, Review Am. Birds, May, 1865, 307 (Panama R. R.).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1875, 495 (Colombia).—BERLEPSCH and TACZANOWSKI, Proc. Zool. Soc. Lond., 1883, 543 (Chimbo, w. Ecuador).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 231.—SHARPE, Cat. Birds Brit. Mus., x, 1885, 185, 634 (Panama; Remedios, province Antioquia, Colombia; Cosnipata, Peru).—SHARPE and WYATT, Mon. Hirund., 1894, 501, 517, pl. 97.

[*Atticora*] *tibialis* GRAY, Hand-list, i, 1869, 72, no. 859.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 14 (Peru; Panama).

Genus PYGOCHELIDON Baird.

Pygochelidon BAIRD, Review Am. Birds, May, 1865, 270, 305, 308. (Type, *Hirundo cyanoleuca* Vieillot.)

Small Hirundinidæ (wing about 100 mm.) with very short and relatively deep bill, the small, roundish nostrils opening superiorly; tarsus longer than middle toe (without claw), entirely unfeathered except extreme upper end in front; middle toe united to outer by whole of basal phalanx; tail about half as long as wing (or a little more), forked for less than one-fourth its length; upper parts uniform glossy blue-black, the under parts white with blue-black under tail-coverts.

Bill very short (exposed culmen less than half as long as distance from nostril to eye), but relatively deep and narrow, its depth at base of exposed culmen nearly equal to its width at same point; culmen nearly straight basally, more decidedly curved terminally, but tip of maxilla very slightly produced; gonys slightly convex, decidedly ascending terminally, its base forming an obvious angle; commissure straight, its subterminal notch minute but distinct. Nostril small, roundish, opening latero-superiorly, with a narrow superior membranous operculum, posteriorly in contact, or very nearly so, with feathering of frontal antiae. Rictal bristles obvious, but small. Tail about half as long as wing (or a little more), forked for less than one-fourth its length, the lateral rectrices moderately contracted terminally and obtusely pointed. Tarsus longer than middle toe (without claw), entirely unfeathered, except at extreme upper end in front, the tibial feathers short; middle toe united to outer toe by whole of its

^aThree specimens, none of them with sex determined.

basal phalanx, to the inner by about half its basal phalanx; claws of lateral toes scarcely reaching to base of middle claw.

Coloration.—Upper parts and under tail-coverts glossy blue-black; under parts (except tail-coverts) white, with a black patch on each side of breast and another (partly concealed) in center of breast.

Nidification.—Nest in holes of trees and buildings, composed of fine grasses, feathers, etc.; eggs immaculate white.

Range.—Costa Rica to Patagonia. (Monotypic ?^a)

KEY TO THE SPECIES (OR SUBSPECIES ?) OF PYGOCHELIDON.

- a. All the under tail-coverts black; feathers of upper back with concealed spots of white or very pale gray; smaller (adult male averaging wing 96.2, tail 50.9, tarsus 10, middle toe 9.1; adult female, wing 94.6, tail 50.8, tarsus 10.1, middle toe 9.2). (Costa Rica to southern Brazil and northern Chile.)

Pygochelidon cyanoleuca (p. 69)

- aa. Only the longer under tail-coverts black, the shorter (anterior) ones white, like abdomen, etc.; feathers of upper back with concealed spots of gray but not of white; larger (adult male averaging wing 98.8, tail 52.5, tarsus 11.2, middle toe 9.7; adult female, wing 101.4, tail 54, tarsus 11.7, middle toe 10.6). (Chile, Patagonia, Uruguay, and Argentina.)...*Pygochelidon patagonica* (extralimital)^b

PYGOCHELIDON CYANOLEUCA (Vieillot).

BLUE-AND-WHITE SWALLOW.

Adults (sexes alike).—Above glossy, dark violaceous steel blue, this color also extending over sides of head and neck to extreme lateral portion of chest, but the auricular region sometimes lusterless black, like lores; lesser and middle wing-coverts black, broadly margined with dark violaceous steel blue; greater coverts similar, but with bluish margins much less distinct; remiges and rectrices grayish black; under tail-coverts black, broadly margined with dark steel bluish; under wing-coverts and axillars dark sooty gray, the marginal coverts more or less distinctly tipped with whitish; rest of under parts white, strongly shaded with grayish brown (sometimes mixed with glossy blue-black) on sides and flanks; center of chest with a more or less distinct cluster of dusky spots, these sometimes forming an interrupted narrow collar across chest, sometimes (though very rarely) almost wanting; feathers of upper back spotted beneath surface with white or very pale grayish; bill black; iris brown; legs and feet light horn brownish.

^aPossibly two species, it being doubtful whether *P. patagonica* (D'Orbigny and Lafresnaye) is a species or subspecies, though for the present, not having seen evidence or indication of intergradation, I prefer to accord it specific rank.

^b*II*[*irundo*] *patagonica* D'Orbigny and Lafresnaye, Mag. de Zool., 1837 (Synopsis Avium, p. 69) (Patagonia).—*Atticora patagonica* Baird, Review Am. Birds, 1865, 311, footnote.—*Atticora hemipyga* Burmeister, Reise La Plata, ii, 1861, 479 (Mendoza, Argentina).—*Atticora cyanoleuca* (not *Hirundo cyanoleuca* Vieillot) Sharpe, Cat. Birds Brit. Mus., x, 1885, 186, 634, part; Sharpe and Wyatt, Mon. Hirund., 1894, 505, part.

Young.—Much duller in color than adults. Above dark sooty grayish brown, the back (sometimes pileum also), blackish, more or less glossed with bluish; under tail-coverts sooty grayish brown usually margined with paler; rest of under parts white, the chest (forming a more or less distinct band), sides and flanks pale wood brown or brownish buff.

Adult male.—Length (skins), 106–122 (115.1); wing, 92–100 (96.2); tail, 48–55 (50.9), forked for 7–15 (11); exposed culmen, 5–5.5 (5.2); width of bill at frontal antiae, 4–5 (4.5); tarsus, 10–11 (10); middle toe, 9–10.5 (9.1).^a

Adult female.—Length (skins), 106–126 (113.3); wing, 91–102 (94.6); tail, 47–54 (50.8), forked for 8–13 (10.1); exposed culmen, 5–6 (5.5); width of bill at frontal antiae, 4–5 (4.6); tarsus, 10–10.5 (10.1); middle toe, 8–10 (9.2).^b

Costa Rica (San José, Tucurrique, Navarro de Cartago, Alajuela, etc.) and southward over whole breadth of South America as far as southern Brazil, Bolivia, and Peru (northern Chile?^c).

Hirundo cyanoleuca VIEILLOT, Nouv. Dict. d'Hist. Nat., xiv, 1817, 509 (Paraguay; based on *Golondrina de los temoneles negros* Azara, Apunt., ii, 508).—GRAY, Cat. Fissirostr. Birds Brit. Mus., 1848, 27.—GOULD, Zool. Voy. "Beagle," iii, 1841, 41 (Valparaiso, Chile, breeding).—LÉOTAUD, Ois. Trinidad, 1866, 90.—SCLATER, Proc. Zool. Soc. Lond., 1867, 321.

^aFourteen specimens.

^bTen specimens.

Specimens from different geographic areas average, respectively, as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Width of bill at frontal antiae.	Tarsus.	Middle toe.	Depth of fork of tail.
MALES.							
Two adult males from Costa Rica	95.5	50	5	4.5	10	9.2	14
Four adult males from Colombia	97.7	51.1	5.4	4.6	10	9.2	11.7
Two adult males from Peru (Lima)	98.5	54	5.2	4.5	10	9	12.5
Five adult males from Brazil	94.3	50.3	5.1	4.3	10.2	9.9	9.7
One adult male from Chili (Valparaiso) .	96	48	5	5	10	9.5	10
FEMALES.							
One adult female from Costa Rica	94	56	6	5	10	9	15.5
Four adult females from Colombia	98.4	48.6	5.2	4.2	10	9.2	11
Two adult females from Peru (Lima)	98.5	53.2	5.5	5	10	8.2	11
One adult female from Venezuela	102	52	6	5	10.5	10	11
One adult female from southern Brazil ..	93	47	5	5	10.5	9.5	8
One adult female from Paraguay	97	52	5	4	10	10	11.5

The series is not a very satisfactory one, and I suspect that several of the specimens are wrongly sexed. Such as it is, I am unable to make out a northern form ("var. *montana*" of Baird). The single Chilean specimen (from Valparaiso) differs from all the others in the decided *greenish* instead of *violaceous steel blue* color of the upper parts, and very likely represents a distinct form.

^cThe Chilean bird may be a different form. (See remarks above.)

- H[irundo] cyanoleuca* D'ORBIGNY and LAFRESNAYE, Mag. de Zool., 1839 (Synopsis Avium, p. 68) (Buenos Aires, Argentina; Moxos, Bolivia).—GRAY, Gen. Birds, i, 1845, 58.
- [*Hirundo*] *cyanoleuca* GRAY, Hand-list, i, 1869, 72, no. 851.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 14.
- [*Herse*] *cyanoleuca* BONAPARTE, Consp. Av., i, 1850, 341.
- A[tticora] cyanoleuca* CABANIS, Mus. Hein., i, 1850, 47 (Brazil).—BURMEISTER, Syst. Ueb. Th. Bras., iii, 1856, 147; Reise La Plata, ii, 1861, 479.
- Atticora cyanoleuca* CABANIS, Journ. für Orn., 1860, 401 (San José, Costa Rica); 1861, 92 (Costa Rica).—BAIRD, Review Am. Birds, 1865, 309, footnote (Bahia Blanca and Bahia, Brazil).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1866, 178 (Nauta, upper Amazons); 1867, 749 (Huallaga, e. Peru); 1868, 569 (Arequipa, w. Peru), 627 (Puerto Cabello, Venezuela); 1873, 258 (Nauta, Chyavetas, and Yurimaguas, e. Peru); 1876, 16 (Maranura, Peru); 1879, 495 (Frontina, Antioquia, Colombia), 595 (Moxos, Cangali and Tilotilo, Bolivia).—EULER, Journ. für Orn., 1867, 46 (Brazil; descr. eggs).—SALVIN, Proc. Zool. Soc. Lond., 1870, 184 (Costa Rica); Novit. Zool., ii, 1895, 4 (Cajabamba, Peru, 9,000 ft. alt.).—PELZELN, Orn. Bras., 1871, 18, 402.—WYATT, Ibis, 1871, 323 (Colombia).—HUDSON, Proc. Zool. Soc. Lond., 1872, 844, 845 (Conchitas, Argentina; habits).—TACZANOWSKI, Proc. Zool. Soc. Lond., 1874, 510 (Lima and Amable Maria, centr. Peru); 1879, 224 (Tambillo and Pacasmayo, n. Peru); 1880, 192 (Callacate, n. e. Peru); 1882, 8 (Huambo, n. e. Peru); Orn. du Pérou, i, 1884, 244.—FORBES, Ibis, 1881, 329 (Cabo, Parahyba, etc., n. e. Brazil; habits).—BARROWS, Bull. Nutt. Orn. Club, viii, 1883, 90 (Concepcion, Azul, Bahia Blanca, etc., Uruguay).—BERLEPSCH and TACZANOWSKI, Proc. Zool. Soc. Lond., 1883, 543 (Chimbo, w. Ecuador; crit.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 229.—SHARPE, Cat. Birds Brit. Mus., x, 1885, 186, part, 634 (Irazú district and Tucurrique, Costa Rica; Calovevora, Veragua; Bogota and Frontina, Colombia; Quito, Sical, Chiguinda, and Riobamba, Ecuador; Chanchamayo, Arequipa, Cachupata, and Cosnipata, Peru; Cangali, Bolivia; Bahia and Pará, Brazil; Roraima and Camacusa, British Guiana; Santiago, Chile?).—BERLEPSCH and IHERING, Zeitschr. ges. Orn., 1885, 117 (Taquara, Rio Grande do Sul, s. Brazil).—BERLEPSCH, Journ. für Orn., 1887, 114 (Paraguay).—ALLEN, Bull. Am. Mus. N. H., ii, 1889, 216; iii, 1901, 346 (Chapada, Matto Grosso, s. w. Brazil).—SHARPE and WYATT, Mon. Hirund., 1894, 505, 518, part, pl. 99.—CHAPMAN, Bull. Am. Mus. N. H., vi, 1894, 28 (Trinidad).—ROBINSON, Proc. U. S. Nat. Mus., xviii, 1896, 685 (La Guaira, Venezuela).—LANE, Ibis, 1897, 15 (Sacaya, Chile; habits).—SCHALOW, Zool. Jahrb., Suppl. iv, heft 3, 1898, 728 (Chile).—BANGS, Proc. Biol. Soc. Wash., xiii, 1899, 105 (La Concepcion, Santa Marta, 3,000 ft. alt.).—SALVADORI and FESTA, Boll. Mus. Zool., etc., Torino, xv., no. 357, 1899, 11 (Gualaquiza, etc., e. Ecuador; Valle del Chillo, etc., centr. Ecuador; Niebli, w. Ecuador).—IHERING, Aves do Est. S. Paulo, 1899, 140 (Ypiranga, S. Sebastião, and Iguaçu, province São Paulo, s. Brazil).—ROBINSON and RICHMOND, Proc. U. S. Nat. Mus., xxiv, 1901, 177 (La Guaira, Venezuela).
- [*Atticora*] *cyanoleuca* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 14.
- Petrochelidon cyanoleuca* SCLATER, Proc. Zool. Soc. Lond., 1858, 551 (Riobamba, e. Ecuador); 1859, 138 (Pallatanga, w. Ecuador); 1860, 75 (Quito, Ecuador), 85 (Nanegal, e. Ecuador); Cat. Am. Birds, 1862, 40 (Bogota, Colombia; Riobamba, Ecuador; Bolivia; Brazil).
- Hirundo minuta* MAXIMILIAN, Reise Bras., ii, 1821, 336 (Rio de Janeiro, Brazil; type now in coll. Am. Mus. Nat. Hist.; see Allen, Bull. Am. Mus. N. H., ii, 1889, 216); Beitr. Naturg. Bras., iii, pt. i, 1830, 369.—TERMINCKX, Pl. Col., iv (35^e livr.), 1823, pl. 209, fig. 1.

(?) *H[irundo] melampyga* LICHTENSTEIN, Verz. Doubl., 1823, 57 (Bahia, Brazil; coll. Berlin Mus.).

Hirundo melanoleuca (not of Maximilian) GRAY, Cat. Fissirostr. Birds Brit. Mus., 1848, 26.

Atticora cyanoleuca, var. *montana* BAIRD, Review Am. Birds, May, 1865, 310 (Barranca, Costa Rica; coll. U. S. Nat. Mus.; also, San José, Costa Rica, Bogota, and Peru).—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 96 (San José and Barranca, Costa Rica).—FRANTZIUS, Journ. für Orn., 1869, 294 (Costa Rica).

Atticora cyanoleuca, . . . var. *montana* BOUCARD, Proc. Zool. Soc. Lond., 1878, 67 (San José and Cartago, Costa Rica).

Atticora cyanoleuca montana ZELEDON, Anal. Mus. Nac. Costa Rica, i, 1887, 107 (Navarro de Cartago, Zarcero de Alajuela, and Alajuela, Costa Rica).—ALLEN, Bull. Am. Mus. N. H., ii, no. 2, 1889, 80 (Valparaiso, Chile; crit.).—CHERRIE, Auk, ix, 1892, 22 (San José, Costa Rica; descr. young and nesting habits).—BERLEPSCH and STOLZMANN, Proc. Zool. Soc. Lond., 1892, 374 (Lima and Ica, Peru).—BANGS, Proc. New Engl. Zool. Club, iii, Jan. 30, 1902, 60 (Volcan de Chiriqui, 10,800 ft. alt.).

Genus RIPARIA Forster.

Riparia^a FORSTER, Synopt. Cat. Brit. Birds, 1817, 17. (Type, *Riparia europæa* Forster, = *Hirundo riparia* Linnæus.)

Clivicola FORSTER, Synopt. Cat. Brit. Birds, 1817, 55. (Type, *C. europæa* Forster, = *Hirundo riparia* Linnæus.)

Cotile^b BOIE, Isis, 1822, 550. (Type, *Hirundo riparia* Linnæus.)

Cotyle (emendation) BOIE, Isis, 1826, 971.

Small Hirundinidæ (wing less than 110 mm.) with a tuft of small feathers on lower portion of posterior side of tarsus; long claws, that of hallux exceeding the digit in length and those of lateral toes reaching beyond base of middle claw; color, grayish brown above, beneath white with a grayish brown band across chest.

Bill small (exposed culmen equal to about half the distance from nostril to eye), moderately depressed, its depth at nostrils equal to more than half its width at same point; culmen straight to near tip, where gently but decidedly decurved; gonys slightly convex, ascending terminally; maxillary tomium faintly concave, its subterminal notch small but very distinct. Nostril rather large, ovate, opening laterally, overhung by a distinct membraneous operculum, posteriorly in contact with feathering of frontal antiæ. Rictal bristles obsolete. Tail about half as long as wing (equal to or slightly longer than distance from bend of wing to tip of longest secondaries), emarginate (depth of emargination equal to not more than one-sixth its length), the lateral rectrices moderately contracted terminally, with tips obtusely pointed.

^aSee Coues, Auk, xv, July, 1898, 271, and Oberholser, Auk, xvi, July, 1898, 281.

Riparia Meuschen, 1784 (Mollusca), antedates Forster's application of the same name and would disbar the latter had it any nomenclatural status, which Mr. Dall informs me it has not.

^bFrom *κωτίλλειν*, to prattle; see Wharton, Ibis, 1879, 451.

Tarsus slightly longer than middle toe (without claw), the extreme upper portion feathered in front, the posterior face with a tuft of small feathers on lower portion, immediately above base of hallux; claws long, slender, acute, and strongly curved, that of the hallux longer than its digit, those of lateral toes reaching beyond base of middle claw; middle toe united to outer toe by nearly the whole of its basal phalanx, to the inner by about half the basal phalanx.

Coloration.^a—Plain grayish brown above, white beneath, with a grayish brown band across chest.

Nidification.—Nest in holes in banks of rivers, ravines, etc., composed of fine grasses, feathers, etc.; eggs immaculate white.

Range.—Entire Northern Hemisphere. (Monotypic?^b).

RIPARIA RIPARIA (Linnæus).

BANK SWALLOW.

Adults (sexes alike).—Above plain grayish brown (rather grayer than hair brown), darker on the pileum, paler posteriorly, the scapulars, interscapulars, tertials, upper tail-coverts, and feathers of rump with more or less distinct (usually obsolete) paler margins, except in mid-summer; remiges, primary coverts, and alula much darker than rest of upper parts; anterior and lateral portions of forehead paler than crown, sometimes forming a distinct hoary streak laterally along upper edge of lores, and in abrupt contrast with the dusky color of the posterior portion of the latter; chin, throat, malar region, and under parts of body, with under tail-coverts, white, interrupted by a broad band of grayish brown across chest, continued along sides (where fading out on flanks), the median portion of breast usually with more or less concealed spots of grayish brown; axillars and under wing-coverts grayish brown, the marginal coverts margined with white; bill brownish black; iris brown; legs and feet dusky horn color (in dried skins).

Young.—Similar to adults, but feathers of rump, upper tail-coverts, and tertials broadly margined terminally with pale cinnamon-buff, pale wood brown, or whitish, the wing-coverts more narrowly margined with the same; feathers of grayish brown chest-band usually tipped or margined terminally with paler; chin and upper throat often speckled

^aOf the type species; I have seen no other that I consider congeneric with it.

^bThe above diagnosis is drawn up from the type-species, *R. riparia*, alone. Of the remaining species commonly referred to this genus I have been able to examine only one, *Cotile cowani* Sharpe, of Madagascar. This lacks the tarsal tuft, and differs in other particulars, and, according to my views, is not congeneric with *R. riparia*. According to Sharpe and Wyatt (Monograph of the Hirundinidæ, p. 41) the only species recognized by them which possess the tarsal tuft or the jugular band are *Cotile diluta* Sharpe, of central Asia, and *C. shelleyi* Sharpe, of northeastern Africa, both of which seem, judging from the descriptions in the work cited, to be desert forms or subspecies of *R. riparia*.

with grayish brown, and white of under parts sometimes tinged with pale rusty or cinnamon.

Adult male.—Length (skins), 110–127 (119.1); wing, 96–111 (102); tail, 45–58 (49.7), forked for 4–12.5 (8.3); exposed culmen, 5.5–7 (6.3); width of bill at frontal antiae, 4.8–6 (4.9); tarsus, 10–12 (10.8); middle toe, 9–10 (9.4).^a

Adult female.—Length (skins), 113–126 (119.8); wing, 95–108 (100.6); tail, 44–52 (49.9), forked for 6–10 (8); exposed culmen, 6–7 (6.2); width of bill at frontal antiae, 5–6 (5.2); tarsus, 10–12 (11); middle toe, 8–10 (9.5).^b

Northern Hemisphere; in America breeding from arctic districts southward to Georgia (St. Simons Island), Louisiana, Texas, Arizona (Fort Lowell), and northern Mexico (Sabinas, State of Coahuila); in winter migrating southward through Mexico, Central America, and South America, as far as eastern Peru and Brazil, and to West Indies (Cuba; Jamaica; Porto Rico).

[*Hirundo*] *riparia* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 192 (ex Fauna Suecica, no. 247, etc.); ed. 12, i, 1766, 344.—BRÜNNICH, Orn. Bor., 1764, 74.—GMELIN, Syst. Nat., i, pt. 2, 1788, 1019.—LATHAM, Index Orn., i, 1790, 579.

Hirundo riparia WILSON, Am. Orn., v, 1812, 46, pl. 38, fig. 4.—VIEILLOR, Enc. Méth., ii, 1823, 517.—PALLAS, Zoogr. Rosso-Asiat., i, 1826, 535.—SWAINSON and RICHARDSON, Fauna Bor.-Am., ii, 1831, 333.—NUTTALL, Man. Orn. U. S. and Can., i, 1832, 607.—AUDUBON, Orn. Biog., iv, 1838, 584, pl. 385; Synopsis, 1839, 36; Birds Am., oct. ed., i, 1840, 187, pl. 50.—JARDINE, Contr. Orn., 1848, 82 (Bermudas, in autumn).—HURDIS, Jardine's Contr. Orn., 1850, 7

^a Seventeen specimens.

^b Thirteen specimens.

Specimens from separate geographic areas average, respectively, as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Width of bill at frontal antiae.	Tarsus.	Middle toe.	Depth of fork of tail.
MALES.							
Eight adult males from eastern United States.....	98.3	47.3	6.3	4.8	10.8	9.2	7.1
Three adult males from Pacific coast district	104.7	51.2	6.2	4.7	10.7	9.8	7.5
Five adult males from Europe	106.5	52.5	6.3	5.5	10.9	9.6	10.1
One adult male from Korea ..	100	50	6	5	10	9	11
FEMALES.							
Seven adult females from eastern United States.....	99.1	49	6.2	5.2	11	9	7.9
Two adult females from Rocky Mountain district	100	51	6	5.2	11	9.5	8
Two adult females from Pacific coast district	101	51.5	6.2	5	11	9.7	7.7
Two adult males from Europe.....	106	50.5	6	5	11	10	9

I am unable to detect any constant difference in coloration according to locality.

- (Bermudas, Aug., Sept.).—LEMBEYE, *Aves de la Isla de Cuba*, 1850, 47, pl. 7, fig. 3.—JONES, *Naturalist in Bermuda*, 1859, 34.—WILLIS, *Ann. Rep. Smithson. Inst. for 1858 (1859)*, 281 (Nova Scotia).—WIEZ, *Proc. Bost. Soc. Nat. Hist.*, x, 1866, 267 (Labrador).
- [*Cotile riparia* BOIE, *Isis*, 1822, 550.
- Cotile riparia* COUES, *Bull. Nutt. Orn. Club*, v, 1880, 96; *Check List*, 2d ed., 1882, no 183.—RIDGWAY, *Nom. N. Am. Birds*, 1881, no. 157.—HAY, *Bull. Nutt. Orn. Club*, vii, 1882, 91 (Memphis, Tennessee, summer).—BAILEY (H. B.), *Bull. Nutt. Orn. Club*, viii, 1883, 39 (St. Simons I., Georgia, breeding).—SALVIN and GODMAN, *Biol. Centr.-Am.*, *Aves*, i, 1883, 240.—SHARPE, *Cat. Birds Brit. Mus.*, x, 1885, 97, 630.—SHARPE and WYATT, *Mon. Hirund.*, 1894, 43, pl. 9.
- [*Cotile riparia* NEWTON (A. and E.), *Handb. Jamaica*, 1881, 107.—COUES, *Key N. Am. Birds*, 2d ed., 1884, 324.
- Cotile riparia* BOIE, *Isis*, 1826, 971.—BONAPARTE, *Geog. and Comp. List*, 1838, 9.—GAMBEL, *Proc. Ac. Nat. Sci. Philad.*, 1846, 111 (Cuba).—CASSIN, *Illustr. Birds Cal., Tex.*, etc., 1855, 247.—GUNDLACH, *Journ. für Orn.*, 1856, 5 (Cuba); 1861, 330 (do.); 1874, 114 (do.).—NEWBERRY, *Rep. Pacific R. R. Surv.*, vi, 1857, 78 (California).—BREWER, *N. Am. Ool.*, 1857, 105, pl. 4, fig. 49; *Proc. Bost. Soc. N. H.*, vii, 1860, 306 (Cuba).—BAIRD, *Rep. Pacific R. R. Surv.*, ix, 1858, 313; *Cat. N. Am. Birds*, 1859, no. 229; *Review Am. Birds*, 1865, 319.—HEERMANN, *Rep. Pacific R. R. Surv.*, x, pt. iv, no. 2, 1859, 36 (California).—CABANIS, *Journ. für Orn.*, 1861, 93 (Costa Rica).—BLAKISTON, *Ibis*, 1862, 4 (Saskatchewan plains, breeding); 1863, 65 (Saskatchewan).—MARCH, *Proc. Ac. Nat. Sci. Philad.*, 1863, 296 (Jamaica).—MCLlwRAITH, *Proc. Essex Inst.*, v, 1866, 86 (Hamilton, Ontario).—COUES, *Proc. Ac. Nat. Sci. Philad.*, 1866, 72 (Fort Whipple, Ariz.); *Check List*, 1873, no. 115; *Birds N. W.*, 1874, 89; *Birds Col. Val.*, 1878, 435.—SALVIN, *Ibis*, 1866, 192 (Dueñas and Yzabal, Guatemala).—BROWN, *Ibis*, 1868, 427 (Vancouver I.).—LAWRENCE, *Ann. Lyc. N. Y.*, ix, 1868, 96 (Costa Rica); *Bull. U. S. Nat. Mus.*, no. 4, 1876, 17 (Tehuantepec City, Oaxaca, Oct.).—FRANTZIUS, *Journ. für Orn.*, 1869, 295 (Costa Rica).—DALL and BANNISTER, *Trans. Chicago Acad. Sci.*, i, 1869, 280 (Yukon R., Alaska; habits).—COOPER, *Orn. Cal.*, 1870, 110.—ALLEN, *Bull. Mus. Comp. Zool.*, ii, 1871, 269 (Florida in winter).—PELZELN, *Orn. Bras.*, 1871, pp. 18, 402, xxv.—SCLATER and SALVIN, *Proc. Zool. Soc. Lond.*, 1873, 258 (Nauta, e. Peru; Rio Negro).—BAIRD, BREWER, and RIDGWAY, *Hist. N. Am. Birds*, i, 1874, 353, pl. 16, fig. 14.—HENSHAW, *Zool. Exp. W. 100th Merid.*, 1875, 220 (Provo R., Utah).—RIDGWAY, *Orn. 40th Parallel*, 1877, 445 (Truckee R., Nevada; Weber R., Utah).—BREWSTER, *Bull. Nutt. Orn. Club*, iii, 1878, 64 (descr. young).—SENNETT, *Bull. U. S. Geol. and Geog. Surv. Terr.*, v, 1879, 389 (Lomita, s. Texas, breeding).—NEHRLING, *Bull. Nutt. Orn. Club*, vii, 1882, 12 (Buffalo Bayou and Galveston Bay, s. e. Texas, breeding).
- [*Cotile riparia* BONAPARTE, *Consp. Av.*, i, 1850, 342.—GRAY, *Hand-list*, i, 1869, 73, no. 864.—COUES, *Key N. Am. Birds*, 1872, 114.—SCLATER and SALVIN, *Nom. Av. Neotr.*, 1873, 14.—CORY, *List. Birds W. I.*, 1885, 10.
- [*Cotile riparia* CABANIS, *Mus. Hein.*, i, 1850, 49 (Pomerania).
- Clivicola riparia* STEINER, *Proc. U. S. Nat. Mus.*, v, June 5, 1882, 32.—AMERICAN ORNITHOLOGISTS' UNION, *Check List*, 1886, no. 616.—CORY, *Auk*, iii, 1886, 59; *Birds W. I.*, 1889, 73; *Cat. W. I. Birds*, 1892, 115 (Cuba; Jamaica; Porto Rico).—ZELEDON, *Anal. Mus. Nac. Costa Rica*, i, 1887, 107 (Costa Rica).—SCOTT, *Auk*, v, 1888, 31 (Fort Lowell, Arizona, breeding); x, 1893, 181 (Jamaica).—RIDGWAY, *Orn. Illinois*, i, 1889, 210.—TREAT, *Auk*, vii,

- 1890, 96 (record of mortality in Connecticut in June, 1888).—MACFARLANE, Proc. U. S. Nat. Mus., xiv, 1891, 443 (Anderson R., Mackenzie, breeding).—DWIGHT, Auk, x, 1893, 12 (Prince Edwards I., breeding).—NEHRING, Our Native Birds, etc., i, 1893, 358.
- C[livicola] riparia* RIDGWAY, Man. N. Am. Birds, 1887, 463.
- R[iparia] riparia* JORDAN, Man. Vertebr. E. U. S., 4th ed., 1884, 72.
- Riparia riparia* AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xix, July, 1902, 325.—BREWSTER, Bull. Mus. Comp. Zool., xli, 1902, 170 (San José del Cabo, Lower California, Sept.).
- Riparia europæa* FORSTER, Synopt. Cat. Brit. Birds, 1817, 17.
- Clivicola europea* FORSTER, Synopt. Cat. Brit. Birds, 1817, 55.
- Hirundo cinerea* (not of Latham) VIEILLLOT, Nouv. Dict. d'Hist. Nat., xiv, 1817, 526.
- Clivicola riparia cinerea* STEJNEGER, Bull. U. S. Nat. Mus., no. 29, 1885, 268, in text.
- Cotyle fluviatilis* BREHM, Vög. Deutschl., 1831, 142.
- Cotyle microrhynchos* BREHM, Vög. Deutschl., 1831, 143.
- Hir[undo] riparia americana* (not *Hirundo americana* MAXIMILIAN, Journ. für Orn., 1858, 101 (upper Missouri R.).
- Clivicola riparia maximiliani* STEJNEGER, Bull. U. S. Nat. Mus., no. 29, 1885, 378, footnote (to replace *Hirundo cinerea* Vieillot, preoccupied).

Genus *HIRUNDO* Linnæus.

- Hirundo* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 191. (Type, as fixed by Schaeffer, ^a *H. rustica* Linnæus.)
- Chelidon* FORSTER, Synop. Cat. Brit. Birds, 1817, 17. (Type, *C. procne* Forster, = *Hirundo rustica* Linnæus.)
- Cecropis* BOIE, Isis, 1826, 971. (Type, *Hirundo capensis* Gmelin, = *H. cucullata* Boddaert.)
- "*Acropis* REID[ER] and HAHN, 1835." (Gray, Hand-list, i, 1869, 69.)
- Lillia* BOIE, Isis, 1844, 174, footnote; Journ. für Orn., vi, Sept., 1858, 364. (Type, *Hirundo erythropygia* Sykes.)
- Hypurolepis* GOULD, Birds of Asia, i, pt. xx, 1868, pl. 32. (Type, *H. domicola* Gould, = *Hirundo javanica* Sparrman.)
- Hypurolepis* (emendation) SUNDEVALL, Met. Nat. Av. Disp. Tent., 1872, 52.
- Herse* (not of Oken, 1815) GRAY, List Gen. Birds, 1841, 11. (Type, *Hirundo taitensis* Lesson, = *H. tahitica* Gmelin.)

Small to rather large Hirundinidæ with nostrils opening laterally and overhung by a distinct membraneous operculum, the frontal feathers not extending forward as far as anterior end of nostrils; tarsus entirely unfeathered except at extreme upper portion, hind claw shorter than the digit; tail two-thirds as long as wing, or longer, and forked for more than one-third its length (or else^b inner webs of rectrices with a white spot), the upper parts with chestnut or rufous on either forehead or rump (or both), the under parts either partly chest-

^a Elem. Orn., 1774, pl. 40; see Reichenow, Journ. für Orn., 1889, 187; Allen, Bull. Am. Mus. N. H., iii, 1891, 346; Coues, Auk, xv, 1898, 271.

^b In *H. javanica* Sparrman, which except only as to the short and slightly forked tail, is in every other respect a typical *Hirundo*.

nut or rufous, whitish streaked with darker, or white with a black band across chest.

Bill small (exposed culmen shorter than distance from nostril to eye), depressed, the culmen nearly straight to near tip where more or less strongly decurved; gonys nearly straight or slightly convex, the base not forming an angle; commissure nearly straight, the subterminal notch distinct but sometimes minute. Nostril opening laterally, narrow,^a longitudinal, overhung by a rather broad membraneous operculum. Rictal bristles rather few and weak, but the larger ones projecting a considerable distance beyond the tomial edge of the maxilla. Tail two-thirds as long as the wing, or longer,^b forked for more than one-third its length, sometimes for more than half its length, the lateral rectrices becoming gradually narrower and more attenuated to the outermost, which are sometimes almost filiform for the terminal portion, but always with obtuse tips. Tarsus equal to or slightly longer than middle toe (without claw), only the extreme upper portion, if any, feathered; middle toe united to outer by greater part of its basal phalanx, to the inner by about half the basal phalanx; lateral claws reaching about to base of middle claw or falling slightly short.

Coloration.—Upper parts mainly glossy blue-black or dark steel blue, but always with chestnut or rufous on forehead or rump, sometimes both, the entire pileum sometimes rufous; under parts colored as follows: (a) Throat chestnut, bordered behind, at least laterally, by glossy black, the remaining under parts, including under tail-coverts, uniform white, buff, cinnamon or rufous. (b) Throat and rest of under parts pure white, the chest crossed by a band of glossy black. (c) Throat cinnamon-rufous, the remaining under parts pale brownish gray, with black centers to longer under tail-coverts. (d) Under parts rufous becoming paler (sometimes white) on throat. (e) Under parts bright rufous or buffy, including throat, sometimes narrowly streaked with blackish, the under tail-coverts black. (f) Under parts white or buffy, streaked with black, including under tail-coverts.

In addition to these color characters are others in the following combinations:^c

^a Broader and more rounded, and with narrower operculum in some Old World species, for example *H. montieri* Hartlaub.

^b As stated before, *H. javanica* forms an exception to this character, though otherwise apparently a typical *Hirundo*.

^c Perhaps other combinations occur in species which I have not seen, those examined being the following: *H. rustica* Linnæus; *H. gutturalis* Scopoli; *H. tytleri* Jerdon; *H. erythrogaster* Boddaert; *H. neorena* Gould; *H. javanica* Sparrman; *H. albigula* Bonaparte; *H. montieri* Hartlaub; *H. gordonii* Jardine; *H. badia* Cassin; *H. hyperythra* Blyth; *H. emini* Reichenow; *H. rufula* Temminck; *H. japonica* Temminck and Schlegel; *H. cucullata* Boddaert, and *H. puella* Temminck.

- (1) Inner webs of rectrices with a white spot. (Styles *a*, *b*, *c*, *d*, and *f*.)
- (2) Rump glossy black, like back, etc. (Styles *a*, *b*, and *c*.)
- (3) Rump chestnut, rufous, or cinnamon-buff. (Styles *d*, *e*, and *f*.)
- (4) Forehead chestnut, the rest of pileum together with auricular region black. (Styles *a*, *b*, and *c*.)
- (5) Entire pileum black, the auricular region chestnut, rufous, gray (finely streaked) or whitish. (Styles *d* and *e*; the latter divisible into two subgroups, one having the forehead entirely black and no complete nuchal collar, the other having the anterior portion of the forehead more or less rufescent and a complete nuchal collar of rufous.)
- (6) Entire pileum rufous. (Style *f*.)

Nidification.—Nest cup-shaped (open above), composed of mud-pellets, attached to face of rocks or parts of buildings (usually inside), lined with soft feathers; eggs spotted.

Range.—Cosmopolitan.

KEY TO THE SPECIES OF *HIRUNDO*.

- a. Throat and forehead deep chestnut; pileum and hindneck glossy dark steel blue, like back. (Adults.)
 - b. Black jugular band very broad, extending uninterruptedly across chest. (Palearctic region, except extreme eastern portion; migrating in winter into Indo-Malayan and African regions; accidental in America.)

Hirundo rustica, adults (p. 79)
 - bb. Black jugular band narrow and completely interrupted, or else very narrow and more or less broken in middle portion.
 - c. Under parts of body varying from nearly white to buffy cinnamon-rufous;^a adult male averaging wing 119.3, tail 107; adult female, wing 117, tail 87. (North America; Mexico, Central America, and most of South America in winter.) *Hirundo erythrogastra*, adults (p. 80)
 - cc. Under parts of body varying from cinnamon-rufous to nearly chestnut; adult male averaging wing 118.2, tail 89.1; adult female, wing 115.4, tail 76.4. (Eastern Asia, breeding in Kamchatka and eastern Siberia; occasional in western North America, Central America, and South America?)

Hirundo tytleri, adults (p. 82)
- aa. Throat and forehead pale cinnamon-rufous or vinaceous-rufous. (Young.)
 - b. A broad dusky band across chest. *Hirundo rustica*, young (p. 79)
 - bb. A very narrow, if any, dusky band across chest (usually none, except laterally) *Hirundo erythrogastra*, young (p. 81)

^aThe darker males of *H. erythrogastra* approach so nearly in color of the under parts to females of *H. tytleri* that I am unable to distinguish them satisfactorily. In fact, two females in the American series (nos. 65482, U. S. Nat. Mus. coll., Amak-nak Island, Unalaska, June 7, 1873, and 70879, St. Michael, Alaska, June 22, 1876, are equally deep colored beneath, the latter (as well as several of the lighter colored American specimens) having the jugular collar complete, though very narrow, as in *H. tytleri*, and the frontal chestnut patch even broader than in examples of the latter. It is possible these specimens may be wrongly determined as to sex; if not, I am unable to see how the two forms can be invariably distinguished.

HIRUNDO RUSTICA Linnæus.

EUROPEAN CHIMNEY SWALLOW.

Adult male.—Forehead (broadly) chestnut; rest of upper parts glossy dark steel blue, usually tinged with violet, especially on upper tail-coverts; wings and tail dusky, faintly glossed with greenish, the wing-coverts and tertials margined with steel blue; inner webs of rectrices (except middle pair) with a large spot of white; chin and throat chestnut; a broad band of glossy blue-black across chest, some of the feathers occasionally tipped with chestnut; rest of under parts dull pinkish buff or pale cinnamon-buff, deepest on crissum, where sometimes almost vinaceous-cinnamon; bill black; iris brown; legs and feet dark horn color or blackish; length (skins), 170–203 (178.4); wing, 121–124.5 (123.1); tail, 87–117 (99.3); exposed culmen, 7.5–8 (7.8); width of bill at frontal antiæ, 6–6.5 (6.1); tarsus, 10.5–12 (11.2); middle toe, 11–12.5 (11.9).^a

Adult female.—Similar to the adult male and sometimes not distinguishable, but usually smaller and with under parts of body decidedly paler (dull white or buffy white); length (skins), 158–168 (161.5); wing, 119–123 (120.8); tail, 79–89 (85); exposed culmen, 7–8 (7.8); width of bill at frontal antiæ, 5.5–6.5 (6.1); tarsus, 11; middle toe, 12–12.5 (12.2).^b

Young.—Much duller in color than adults; pileum and sides of head black or sooty black, slightly glossed with greenish steel blue, the forehead dull brown; steel blue gloss of back, rump, etc., less bright and more greenish; chin and throat vinaceous-cinnamon, cinnamon-buff or ochraceous-buff; jugular band sooty blackish, without gloss; rest of under parts varying from dull white to pinkish buff.

Palearctic Region, except extreme eastern portion; south in winter to India, China, Burma, Malay Peninsula, and greater part of Africa; accidental, during migration, on American side of the middle Atlantic.^c

[*Hirundo*] *rustica* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 191 (based on Fauna Suecica, p. 244); ed. 12, i, 1766, 344.—GMELIN, Syst. Nat., i, pt. ii, 1788, 1015.

Hirundo rustica TEMMINCK, Man. d'Orn., 1815, 265; ed. 2, i, 1820, 427.—ROUX, Orn. Prov., 1825, pl. 141.—WERNER, Atlas, Chelidoneæ, 1827, pl. 1.—NAUMANN, Vög. Deutschl., vi, 1833, 7, pl. 145, fig. 1; Anhang, xiii, 1860, pl. 383, fig. 2.—GOULD, Birds Europe, ii, 1837, pl. 54; Birds Gt. Brit., ii, 1873, pl. 5.—MACGILLIVRAY, Hist. Brit. Birds, iii, 1840, 553.—KEYSERLING and BLA-

^a Seven specimens.

^b Five specimens.

^c A specimen in the U. S. National Museum collection (no. 77380) is labeled as having been "taken during voyage from Norfolk to Rio de Janeiro by Edwd. Donnelly."

SIUS, Wirb. Eur., 1840, 196.—YARRELL, Hist. Brit. Birds, ii, 1843, 213.—1854, pl. 57; Dier. Nederl. Vog., 1861, pl. 6, fig. 4.—SUNDEVALL, Sv. Fogl., KJÆRBOLLING, Danm. Fugle, 1852, pl. 14, fig. 4.—SCHLEGEL, Vog. Nederl., 1856, pl. 17, fig. 5.—JERDON, Birds India, i, 1862, 157.—DEGLAND and GERBE, Orn. Eur., i, 1867, 587.—HEUGLIN, Orn. N. O.-Afr., i, 1869, 150; iv, App., 1873, p. lv.—GODMAN, Azores, 1870, 341.—FRITSCH, Vög. Eur., 1870, pl. 2, fig. 4.—FINSCH and HARTLAUB, Vög. Ostaf., 1870, 134.—SALVADORI, Faun. Ital., Ucc., 1871, 51.—SHARPE, Cat. Birds Africa, 1871, 45; Cat. Birds Brit. Mus., x, 1885, 127.—HARTING, Handb. Brit. Birds, 1872, 35.—NEWTON, ed. Yarrell's Hist. Brit. Birds, ii, 1880, 340.—GIGLIOLI, Elench. Ucc. Ital., 1881, 64.—OATES, Birds Brit. Burma, i, 1883, 302, part.—SEEBORN, Hist. Brit. Birds, ii, 1883, 171, pl. 17 (eggs).—SHARPE and LAYARD, Birds South Afr., 1884, 362.

Cecropis rustica LESSON, Compl. Buffon, viii, 1837, 498.

Chelidon rustica STEJNEGER, Proc. U. S. Nat. Mus., vi, 1882, 31.

Hirundo domestica PALLAS, Zoogr. Rosso-Asiat., i, 1826, 528, part.

Chelidon procne FORSTER, Synop. Cat. Brit. Birds, etc., 1817, 17, 55.

Cecropis pagorum BREHM (C. L.), Vög. Deutschl., 1831, 138; Naumannia, 1855, 271.

Cecropis stabulorum BREHM (C. L.) Naumannia, 1855, 271.

Hirundo cahirica (not of Lichtenstein) HARTLAUB, Orn. W. Afr., 1857, 26.—LOCHE, Expl. Sci. Algér., Ois., ii, 1867, 67.

Hirundo boissonneaui (not of Temminck) LINDERMAYER, Vög. Griechenl., 1860, 119.

HIRUNDO ERYTHROGASTRA Boddaert.

AMERICAN BARN SWALLOW.

Similar to *H. rustica*, but smaller, more intensely colored on under parts, and without black band across chest.

Adult male.—Forehead (broadly) chestnut; rest of upper parts glossy dark steel blue or violaceous steel blue; wings and tail dusky, faintly glossed with greenish, the middle wing-coverts and tertials broadly margined with glossy steel blue, the greater coverts and tertials more or less strongly glossed with the same; inner web of rectrices (except middle pair) with a conspicuous white spot (sometimes tinged with vinaceous-cinnamon or vinaceous-buff); malar region, chin, throat, and chest chestnut or deep cinnamon-rufous, the chest margined laterally by an extension of the glossy dark steel blue from sides of the neck, these two lateral patches sometimes connected, narrowly, and thus forming a nearly complete collar; rest of under parts pale cinnamon-rufous, or intermediate between cinnamon-rufous and vinaceous-cinnamon—occasionally much paler, rarely nearly white; bill black; iris brown; legs and feet dusky horn color or blackish; length (skins). 153–185 (166.8); wing, 113–124 (118.2); tail, 77–105 (89.1); exposed culmen, 7–9 (7.9); width of bill at frontal antiæ, 6–7 (6.5); tarsus. 10.5–11.5 (10.5); middle toe, 11.5–13 (12).^a

Adult female.—Similar to the adult male and often not distinguishable, but usually a little smaller and under parts a little paler; length

^aTwenty-four specimens.

(skins), 144–165 (155.5); wing, 110–120.5 (115.4); tail, 71–80 (76.4); exposed culmen, 7–8.5 (7.8); width of bill at frontal antæ, 6–7 (6.5); tarsus, 10.5–11 (11); middle toe, 11–12 (11.7).^a

Young.—Much duller in color than adults; pileum and hindneck sooty black, much more faintly glossed with blue than back; forehead dull light brownish or brownish buff; chin and throat vinaceous-cinnamon.

North America in general; north to Alaska (Kowak River, St. Michael, Pribilof Islands, Unalaska, Nulato, etc.), Ungava (head of Hamilton Inlet), etc., accidentally to Greenland (two specimens); breeding southward over whole of United States (except Florida?) and through central and western Mexico as far as states of Guanajuato and Jalisco (Guadalajara) and territory of Tepic; in winter from southern Florida (Tarpon Springs) and southern Mexico, through Central America and South America as far as southern Brazil, Paraguay, Argentina, Bolivia, and Peru, and throughout West Indies (Bahamas, Cuba, Grand Cayman, Cayman Brac, Jamaica, Porto Rico, Sombrero, St. Croix, St. Bartholomew, Guadeloupe, Grenada, and Barbados^b); Swan Island, Carribean Sea; accidental in Galapagos Archipelago (Charles and Chatham islands) and occasional in Bermudas.

Hirundo erythrogaster BODDAERT, Tabl. Pl. Enl., 1783, 45 (based on *Hirondelle à ventre roux de Cayenne*, Daubenton, Pl. Enl., vii, pl. 724, fig. 1).—BAIRD, Review Am. Birds, 1865, 295 (Vermejo R., Paraguay).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 232.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 122.—WILSON (S. S.), Auk, xvi, 1899, 189 (San Miguel Co., New Mexico, breeding).—GRINNELL (J.), Condor, iii,

^aFourteen specimens.

Specimens from the eastern United States compare in average measurements with those from the western United States (including British Columbia) and Alaska, respectively, as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Width of bill at frontal antæ.	Tarsus.	Middle toe.
MALES.						
Eleven adult males from eastern United States....	118.1	87.6	7.8	6.5	11.2	12
Ten adult males from western United States and British Columbia	117.6	90.3	7.8	6.4	10.7	11.9
Three adult males from Alaska (two from Una- laska Island)	121	90.3	8	7	11	12.2
FEMALES.						
Six adult females from eastern United States.....	116.2	74.2	8	6.7	11	12
Seven adult females from western United States, etc.	114.4	77.6	7.6	6.3	10.9	11.6
Two adult females from Unalaska Island.....	116.7	77.5	8.2	6.5	11	11.2

I am unable to appreciate any color differences, unless it be that western and Alaskan specimens are more rarely pale colored beneath. The series of eastern specimens, however, is too meager for satisfactory comparison.

^bNot yet recorded from other West India islands.

- 1901, 23 (Nutchuk, Prince William Sound, Alaska; crit.).—BREWSTER, Bull. Mus. Comp. Zool., xli, 1902, 166 (Triunfo and San José del Cabo, Lower California, April, August).
- H[irundo] erythrogastra* GRAY, Gen. Birds, i, 1845, 57.—NEWTON (A. and E.), Handb. Jamaica, 1881, 107.
- Hirundo erythrogastra* SCLATER, Cat. Am. Birds, 1862, 39 (Brazil).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1867, 569 (Mexiana, lower Amazon); 1869, 597 (Peru); 1873, 185 (Cosnipata, e. Peru).—PELZELN, Orn. Bras., 1871, 18, 402.—LAYARD, Ibis, 1873, 378 (Pará, lower Amazons).—TACZANOWSKI, Proc. Zool. Soc. Lond., 1874, 510 (Lima, Peru).—COUES, Birds Col. Val., 1878, 407.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 154.—BEAN, Proc. U. S. Nat. Mus., v, 1882, 148 (Unalaska and Amaknak islands, Alaska, breeding).—NUTTING, Proc. U. S. Nat. Mus., v, 1883, 499 (San José, Costa Rica).—BICKNELL, Auk, i, 1884, 325 (song).—MCLENNAN, Cruise "Corwin," 1884, 114 (Kowak R., Alaska, breeding).—SHARPE, Cat. Birds Brit. Mus., x, 1885, 632 (Unalaska, Alaska; Dueñas, Guatemala; Calobre and Volcan de Chiriqui, Veragua; Panama; Roraima, British Guiana; Mexiana I., lower Amazon; Cosnipata, Peru).—WELLS, Proc. U. S. Nat. Mus., ix, 1887, 612 (Grenada, Aug. to Mar.).—BERLEPSCH, Journ. für Orn., 1887, 5 (Lambaré, Paraguay, Jan.), 114 (Paraguay).—ALLEN, Bull. Am. Mus. N. H., iii, 1891, 346 (Corumba, province Matto Grosso, s. w. Brazil, Mar. 23; crit.).—PETERS, Journ. für Orn., 1892, 117 (Curaçao).—KERR, Ibis, 1892, 123 (lower Pilcomayo, Argentina, Feb.).—MACKAY, Auk, xvi, 1899, 184 (nesting habits).—SHARPE and WYATT, Mon. Hirund., 1894, 253, pl. 42.
- [Hirundo] erythrogastra* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 14.—CORY, List Birds W. I., 1885, 10.
- Hirundo erythrogastra?* BERLEPSCH and STOLZMANN, Proc. Zool. Soc. Lond., 1892, 374 (Lima and Ica, Peru; crit.).
- Chelidon erythrogastra* STEJNEGER, Proc. U. S. Nat. Mus., v, June 5, 1882, 31.—CORY, Auk, iii, 1886, 59 (West Indian references); Birds W. I., 1889, 73 (do.); Cat. W. I. Birds, 1892, 115 (Maraguna, Little Inagua, Great Inagua, Cay Sal, and Anguilla, Bahamas; Cuba; Grand Cayman; Jamaica; Porto Rico; St. Croix; St. Bartholomew; Guadeloupe; Grenada; Barbados).—GRINNELL (J.), Auk, xv, 1898, 129 (Sitka).
- Chelidon erythrogastra* AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 613.—TURNER, Proc. U. S. Nat. Mus., viii, 1885, 239 (head of Hamilton Inlet, Ungava, breeding).—ZELEDON, Anal. Mus. Nac. Costa Rica, i, 1887, 107 (Costa Rica).—TOWNSEND, Auk, iv, 1887, 13 (Kowak R., Alaska).—RIDGWAY, Proc. U. S. Nat. Mus., x, 1887, 576 (Swan I., Caribbean Sea, Apr. 16), 579 (Truxillo, Honduras, Sept. 21); Orn. Illinois, i, 1889, 207.—CORY, Auk, vi, 1889, 31 (Cayman Brac); viii, 1891, 352 (Anguilla and Cay Sal, Bahamas); ix, 1892, 48 (Maragauna, Bahamas).—SCOTT (W. E. D.), Auk, vi, 1889, 325 (Tarpon Springs, Florida, winter); x, 1893, 181 (Jamaica).—RIKER and CHAPMAN, Auk, vii, 1890, 266 (Santarem, lower Amazons).—CHERRIE, Auk, vii, 1890, 335 (San José, Costa Rica, Sept. 8 to Feb.); ix, 1892, 22 (San José, Costa Rica, Sept. to Mar.).—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 486 (Escondido R.; Nicaragua; Aug. to May 3).—NEHRING, Our Native Birds, etc., i, 1893, 349, pl. 18, fig. 1.—CHAPMAN, Bull. Am. Mus. N. H., vi, 1894, 28 (Trinidad).—DAWSON, Auk, xiv, 1897, 95 (natural breeding haunts).
- C[helidon] erythrogaster* RIDGWAY, Man. N. Am. Birds, 1887, 461.
- [Hirundo horreorum.] a. erythrogaster* COUES, Birds N. W., 1874, 85 (S. Am. references).
- [Hirundo rustica.]* Subsp. *γ. Hirundo erythrogastra* SHARPE, Cat. Birds Brit. Mus., x, 1885, 137, part (excl. Asiatic localities and references?).

- Hirundo rustica erythrogastra* ROTHSCILD and HARTERT, Novit. Zool., vi, Aug., 1899, 152 (Charles and Chatham islands, Galapagos, Oct., Nov.); ix, 1902, 417.
- [*Hirundo*] *rufa* GÜELIN, Syst. Nat., i, pt. ii, 1788, 1018 (based on *Hirondelle à ventre roux de Cayenne*, Daubenton, Pl. Enl., vii, pl. 724, fig. 1).—LATHAM, Index Orn., i, 1790, 574.
- Hirundo rufa* VIEILLOT, Ois. Am. Sept., i, 1807, 60, pl. 30; Enc. Méth., ii, 1823, 529.—STEPHENS, Shaw's Gen. Zool., x, 1817, 88.—NUTTALL, Man. Orn. U. S. and Can., i, 1832, 601.—BONAPARTE, Geog. and Comp. List, 1838, 9; Consp. Av., i, 1850, 339.—JARDINE, Contr. Orn., 1848, 82 (Bermudas in autumn).—HURDIS, Jardine's Contr. Orn., 1850, 7 (Bermudas, Apr., May, and Sept.).—REINHARDT, Journ. für Orn., 1854, 438 (Greenland); Ibis, 1861, 5 (Fiskebæset and Nenortalik, Greenland; 2 specimens).—CASSIN, Illustr. Birds Cal., Tex., etc., 1855, 243.—BURMEISTER, Syst. Ueb. Th. Bras., iii, 1856, 148.—GUNDLACH, Journ. für Orn., 1855, 3 (Cuba); 1861, 328 (do.).—BRYANT, Proc. Bost. Soc. N. H., vi, 1857, 115 (Nova Scotia).—BREWER, N. Am. Ool., 1857, 91, pl. 5, figs. 63–67; Proc. Bost. Soc. N. H., vii, 1860, 306 (Cuba).—LÉOTAUD, Ois. Trinidad, 1866, 88.
- H[irundo] rufa* CABANIS, Mus. Hein., i, 1850, 46 (Brazil; Mexico).
- Cecropis rufa* LESSON, Compl. Buffon, viii, 1837, 498.
- Hirundo horreorum* BARTON, Frag. Nat. Hist. Penn'a, 1799, 17.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 308; Cat. N. Am. Birds, 1859, no. 225; Review Am. Birds, 1865, 294.—SCLATER and SALVIN, Ibis, 1859, 13 (Dueñas, Guatemala, Apr.); Proc. Zool. Soc. Lond., 1864, 347 (Isthmus Panama).—NEWTON (A. and E.), Ibis, 1859, 66 (St. Croix).—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 184 (Washington, etc.).—LAWRENCE, Ann. Lyc. N. Y., vii, 1862, 317 (Isthmus Panama); viii, 1864, 98 (Sombbrero); Mem. Bost. Soc. N. H., ii, 1874, 487 (Guadalajara and Tepic, breeding); Bull. U. S. Nat. Mus. no. 4, 1876, 17 (Oaxaca, Oct., Aug.); Proc. U. S. Nat. Mus., i, 1878, 455 (Guadeloupe, W. I.); i, 1879, 487 (Guadeloupe).—SCLATER, Cat. Am. Birds, 1862, 38 (Dueñas, Guatemala); Proc. Zool. Soc. Lond., 1864, 173 (City of Mexico).—BROWN, Ibis, 1863, 420 (Vancouver I.).—BRYANT, Proc. Bost. Soc. N. H. xi, 1866, 69 (Bahamas).—SUMICHRIST, Mem. Bost. Soc. N. H., i, 1869, 547 (plateau reg. Vera Cruz).—DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 279 (Nulato, St. Michael, Sitka, etc., Alaska; habits).—SUNDEVALL, Öfv. k. Vet.-Ak. Stockh., 1869, 584 (St. Bartholomew, W. I.).—COOPER, Orn. Cal., 1870, 103.—SALVIN, Proc. Zool. Soc. Lond., 1870, 184 (Veragua).—FINSCH, Abh. Nat. Ver. Brem., iii, 1872, 28 (Alaska).—COUES, Check List, 1873, no. 111; Birds N. W., 1874, 85.—GUNDLACH, Journ. für Orn., 1872, 431 (Cuba); Orn. Cub., i, 1876, 82.—DALL, Proc. Cal. Acad. Sci., v, 1874, 273 (Unalaska).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 339, pl. 16, fig. 9.—HENSHAW, Zool. Exp. W. 100th Merid., 1875, 216 (Utah, Colorado, New Mexico, and Arizona; western references).—BREWSTER, Bull. Nutt. Orn. Club, iii, 1878, 63 (descr. young female).—CORY, Birds Bahama I., 1880, 78.—ZELEDON, Cat. Av. Costa Rica, 1882, 5.—DUGÈS, La Naturelleza, i, 1869, 141 (Guanajuato).
- [*Hirundo*] *horreorum* COUES, Key N. Am. Birds, 1872, 113.
- [*Hirundo horreorum*] *b. horreorum* COUES, Birds N. W., 1874, 85.
- Hirundo erythrogaster*, *β. horreorum* RIDGWAY, Field and Forest, iii, May, 1877, 197 (Colorado).—BELDING, Proc. U. S. Nat. Mus., i, 1879, 408 (central California).
- Hirundo erythrogaster* . . . *β. horreorum* RIDGWAY, Orn. 40th Parallel, 1877, 441.
- Hirundo erythrogaster* var. *horreorum* RIDGWAY (and MERRILL), Proc. U. S. Nat. Mus., i, Aug. 15, 1878, 125 (Fort Brown, Texas, migrant).
- Hirundo erythrogaster*, var. ? *horreorum* COOPER, Proc. U. S. Nat. Mus., ii, 1880, 246.

- Hirundo erythrogastra horreorum* MEARNS, Bull. Nutt. Orn. Club, iv, July, 1879, 164 (Fort Klamath, Oregon).—COUES, Check List, 2d ed., 1882, no. 159.—ALLEN and BREWSTER, Bull. Nutt. Orn. Club, viii, 1883, 160 (Colorado Springs, Colorado).
- H[irundo] erythrogastra horreorum* COUES, Key N. Am. Birds, 2d ed., 1884, 322.
- H[irundo] rustica*, var. *horreorum* SEEBOHM, Hist. Brit. Birds, ii, 1883, 171, in text.
- Hirundo americana* (not of Gmelin) WILSON, Am. Orn., v, 1812, 34, pl. 38, figs. 1, 2.—SWAINSON and RICHARDSON, Fauna Bor.-Am., ii, 1831, 329.—BONAPARTE, Consp. Av., i, 1850, 339.—LEMBEYE, Aves de la Isla de Cuba, 1850, 44, pl. 7, fig. 1.—ADAMS, Ibis, 1878, 423 (St. Michael, Alaska).
- Cecropis americana* LESSON, Compl. Buffon, viii, 1837, 498.
- Hirundo cyanopyrrha* VIEILLLOT, Nouv. Dict. d'Hist. Nat., xiv, 1817, 510 (Paraguay); Enc. Méth., ii, 1823, 528.
- Hirundo rustica* (not of Linnæus) AUDUBON, Orn. Biog., ii, 1834, 413, pl. 173; Synopsis, 1839, 35; Birds Am., oct. ed., i, 1840, 181, pl. 48.—JONES, Naturalist in Bermuda, 1859, 34.
- Hirundo fumaria* LICHTENSTEIN, Preis-Verz. Mex. Vög., 1831, no. 58 (see Cabanis, Journ. für Orn., 1863, 58.)
- (?) *Hirundo tytleri* (not of Jerdon?) SHARPE, Cat. Birds Brit. Mus., x, 1850, 632, part (Dueñas, Guatemala; Callao, Peru).—SHARPE and WYATT, Mon. Hirund., 1894, 249, part (supposed American records).
- Hirundo erythrogastra unalaschkensis* (not *Hirundo unalaschkensis* Gmelin) PALMER (W.), Avifauna Pribilof Islands, 1899, 422 (Pribilof Islands and Unalaska; crit.; habits).—BISHOP, N. Am. Fauna, no. 19, 1900, 87 (Chilkat Inlet, White Pass, etc., Alaska).—ALLEN, Auk, xviii, 1901, 176 (crit.).
- Hirundo erythrogastra palmeri* GRINNELL (J.), Condor, iv, no. 3, May, 1902, 71 (Amaknak I., Unalaska Harbor, Alaska; coll. J. Grinnell); Pacific Coast Avifauna, no. 3, 1902, 60.

HIRUNDO TYTLERI Jerdon.

KAMCHATKAN BARN SWALLOW.

Similar to *H. erythrogastra*, but wing averaging slightly, the tail much longer, and under parts of body more deeply colored, in the adult male varying from cinnamon-rufous to almost chestnut, in the adult female buffy cinnamon-chestnut. (Young not seen.)

Adult male.—Length (skins), 171–183 (174); wing, 117–121 (119.3); tail, 98–117 (107); exposed culmen, 7; width of bill at frontal antia, 5–6 (5.7); tarsus, 10.5; middle toe, 11–12 (11.3).^a

Adult female.—Length (skin), 158; wing, 117; tail, 87; exposed culmen, 7; width of bill at frontal antia, 6; tarsus, 11; middle toe, 11.5.^b

Northeastern Siberia (Irkutsk, etc.) and Kamchatka; migrating in winter to the "lowlands of Dacca, the Burmese Provinces, and Tenasserim;"^c occasional in western North America, Guatemala (Dueñas) and Brazil (Pará)?^c

^aThree specimens.

^bOne specimen.

^cSharpe and Wyatt, Mon. Hirund., 1894, 250.

Regarding the alleged occurrence of this form in America I am inclined to believe, without having seen the specimens upon which the records are based, however, that the supposed examples of *H. tytleri* from Guatemala and Brazil are in reality dark-colored specimens of *H. erythrogastra*. (See remarks in footnote on p. 78.)

- Hirundo domestica* var. PALLAS, Zoogr. Rosso-Asiat., i, 1826, 530, part.
Hirundo rustica var. *rufa* (not *Hirundo rufa* Gmelin) MIDDENDORFF, Sibir. Reise, ii, pt. 2, 1853, 188.
Hirundo rufa (not of Gmelin) KITTLITZ, Denkwürd., ii, 1858, 196.
Hirundo rustica (not of LINNÆUS) RADDE, Reise Süden Ost-Sibir., 1862, 278.
Hirundo tyleri JERDON, Birds of India, iii, 1864, 870.—BLYTH, Ibis, 1866, 336.—GRAY, Hand-list, i, 1869, 68, no. 790.—HUME, Stray Feath., 1875, 41; 1879, 84.—WALDEN, in Blyth's Birds Burma, 1875, 127.—WARDLAW-RAMSAY, Ibis, 1877, 466.—HUME and DAVISON, Stray Feath., 1878, 41.—SIMSON, Ibis, 1882, 84.—GODWIN-AUSTEN, Ibis, 1882, 345.—OATES, Birds Brit. Burma, i, 1883, 304.—SEEBOHM, Hist. Brit. Birds, ii, 1883, 171.—SHARPE and WYATT, Mon. Hirund., 1894, 249, pl. 41.
[*Hirundo rustica*.] Subsp. δ . *Hirundo tyleri* SHARPE, Cat. Birds Brit. Mus., x, 1885, 140.
Chelidon tyleri STEJNEGER, Bull. U. S. Nat. Mus., no. 29, 1885, 269 (Petropavlovsk, Kamchatka; synonymy, critical, etc.); Proc. U. S. Nat. Mus., x, 1887, 143 (Bering I., Kamchatka, rare spring visitant).
[*Chelidon*] *tyleri* RIDGWAY, Man. N. Am. Birds, 1887, 461.
Hirundo cahirica (not of Lichtenstein) GODWIN-AUSTEN, Journ. Asiat. Soc. Bengal, 1874, 152.
H[irundo] americana (not of Gmelin) BLAKISTON, Ibis, 1876, 331, in text (Kamchatka; crit.).—BLAKISTON and PRYER, Trans. Asiat. Soc. Jap., viii, 1880, 311.
Hirundo americana ? BLAKISTON, Ibis, 1878, 386 (Kamchatka; crit.).
Hirundo erythrogastra (not of Boddaert) BLAKISTON and PRYER, Trans. Asiat. Soc. Jap., x, 1882, 139.—BLAKISTON, Amend. List Birds Jap., 1884, 47.
Chelidon erythrogaster STEJNEGER, Proc. U. S. Nat. Mus., vi, 1883, 72 (Pelropavlovsk, Kamchatka).
Hirundo gutturalis (not of Scopoli) TACZANOWSKI, Bull. Soc. Zool. France, 1882, 385.—DYBOWSKI, Bull. Soc. Zool. France, 1883, 357.
Hirundo saturata "Stejneger, MS.," RIDGWAY, Proc. U. S. Nat. Mus., vi, July 21, 1883, 95 (Petropavlovsk, Kamchatka; coll. U. S. Nat. Mus.).

Genus IRIDOPROCNE Coues.

Iridoprocne COUES, Birds Col. Val., 1878, 412, in text. (Type, *Hirundo bicolor* Vieillot.)

Medium-sized or small Hirundinidæ (wing less than 125 mm.) with narrow operculate nostrils opening laterally; frontal feathers not extending as far as anterior end of nostrils; tail not more than half as long as wing, forked for less than one-fourth its length; claws of lateral toes reaching nearly or quite to base of middle claw; upper parts glossy steel blue or green in adults (with or without a white patch on rump), the under parts white.

Bill variable as to relative size,^a but length of exposed culmen always much greater than half the distance from nostril to eye, its width at frontal antiæ varying from decidedly less than length of exposed culmen (in *I. bicolor*) to decidedly more (in *I. leucorrhoa*), its depth at same point equal to about half its width (more in *I. bicolor*); maxillary

^aSmaller, narrower, and weaker in *I. bicolor* and *I. meyeri*; larger, broader, and stronger in *I. albilinea*, *I. leucoptera*, and *I. leucorrhoa*.

tomium nearly straight, with subterminal notch distinct. Nostril longitudinal, narrowly ovate, opening laterally, overhung by a rather broad membranous operculum, the feathering of frontal antiae reaching only to its posterior end or but slightly beyond. Rictal bristles obsolete. Tail not more than half (nor less than two-fifths) as long as wing, more or less emarginated, but depth of the emargination never more than one-fifth its length, usually less (sometimes much less), the lateral rectrices broad to near tips where rather suddenly but not conspicuously contracted, the tip rounded. Tarsus longer than middle toe (without claw), the extreme upper portion feathered; basal phalanx of middle toe united to that of outer toe by at least half, usually nearly the whole, of its length, adherent to the inner by half to much less than half its length; claws of lateral toes reaching nearly or quite to base of middle claw.

Coloration.—Upper parts (of adults) glossy steel blue or green, the rump white in four out of five species; under parts white, including under tail-coverts.

Nidification.—Nest in holes of trees or buildings, composed of fine grasses, feathers, etc.; eggs immaculate white.

Range.—Continental portions of temperate and tropical America. (Five species.)

This very natural group of swallows presents considerable variation in details of structure, especially in the relative size and width of the bill, as noted above. The bill is proportionately smaller and narrower in *I. bicolor* (the type species) than in any other, this being the only species which has the rump concolor with the back. In *I. meyeri* the bill is equally small but is relatively much broader, this species having the rump white, as in the others except *I. bicolor*. The bill is relatively largest in *I. albilinea*, in which the post-nasal portion of the maxillary tomia is conspicuously dilated, the length of the exposed culmen being about equal to the distance from the nostril to the eye, the other species having it much shorter. The basal adhesion of the anterior toes is greatest in *I. bicolor*, *I. albilinea*, and *I. leucoptera*, in which the first phalanx of the middle toe is united to that of the outer toe for practically its entire length. It is least in *I. meyeri*, in which the adhesion extends for only about half the distance.

KEY TO THE SPECIES OF IRIDOPROCNE.

- a. Rump glossy steel blue or green, or dark brownish gray, concolor with back.
(North America; south in winter to Cuba, British Honduras, and Guatemala.)
Iridoprocne bicolor (p. 87)
- aa. Rump white.
 - b. Greater wing-coverts broadly edged with white; upper tail-coverts partly white.
(Colombia, Ecuador, and Guiana to southern Brazil.)
Iridoprocne albiventris (extralimital)^a

^a *Hirundo albiventer* Boddaert, Tabl. Pl. Enl., 1783, 32 (based on *Hirondelle à ventre blanc de Cayenne* Daubenton, Pl. Enl., vii, pl. 546, fig. 1); Baird, Review Am. Birds,

- bb. Greater wing-coverts not edged with white; upper tail-coverts not partly white.
- c. Axillars and under wing-coverts white or very pale gray; general color of upper parts in adults greenish blue or bluish green.
- d. Smaller (wing not more than 105 mm.); feathers of rump with dusky shaft-lines, those of upper back white beneath surface. (Southern Mexico to Peru).....*Iridoprocne albilinea* (p. 90)
- dd. Larger (wing more than 110); feathers of rump without dusky shaft-lines, those of upper back gray beneath surface. (Southern Brazil to Patagonia and eastern Peru).....*Iridoprocne leucorrhoa* (extralimital)^a
- cc. Axillars and under wing-coverts light grayish brown or brownish gray; general color of upper parts violaceous steel blue. (Chile and southern Patagonia to western Bolivia)*Iridoprocne meyeri* (extralimital)^b

IRIDOPROCNE BICOLOR (Vieillot).

TREE SWALLOW.

Adult male.—Above, including sides of head and neck, and lesser wing-coverts, uniform glossy greenish steel blue, varying to bluish green, sometimes with a slight tinge of bronzy green; middle wing-coverts dull black, broadly margined with glossy steel blue or greenish; rest of wings, and tail, dusky, or sooty blackish, faintly glossed with greenish; lores velvety black; malar region and entire under parts pure white; axillars and under wing-coverts brownish gray, the latter becoming paler toward edge of wing; bill black; iris brown; legs and feet brownish or horn color; length (skins), 122–138 (132.6); wing, 111–125 (117.4); tail, 51–60 (55.7), forked for 7.5–11.5 (8.9); exposed culmen, 5.5–7 (6.3); width of bill at frontal antiæ, 4.5–6 (4.9); tarsus, 11–12.5 (12); middle toe, 10.5–12.5 (11.5).^c

Adult female.—Similar to the male, and sometimes not distinguishable, but usually duller in color, the upper parts less brightly steel blue or green, often dusky grayish brown with only the tips of the feathers glossy blue or green; the rump and upper tail-coverts sometimes uniform grayish brown; chest often faintly shaded with brownish gray; length (skins), 125–141 (132.1); wing, 109–122 (113.5); tail, 51–58 (54.5), forked for 7–11.5 (8.4); exposed culmen, 6–7 (6.2);

1865, 302.—*Tachycineta albiventris* Sharpe, Cat. Birds Brit. Mus., x, 1885, 113; Sharpe and Wyatt, Mon. Hirund., 1894, 139, pl. 20.—*Hirundo leucoptera* Gmelin, Syst. Nat., i, pt. 2, 1788, 1022 (same basis as *H. albiventris* Boddaert).

^a *Hirundo leucorrhoa* Vieillot, Nouv. Dict. d'Hist. Nat., xiv, 1817, 519 (Paraguay; based on *Golondrina rabadilla blanca* Azara, Apunt. Parag., ii, 509); Baird, Review Am. Birds, 1865, 301.—*Tachycineta leucorrhous* Sharpe, Cat. Birds Brit. Mus., x, 1885, 114; Sharpe and Wyatt, Mon. Hirund., 1894, 143, pl. 21.—*Hirundo frontalis* (not of Quoy and Gaimard) Gould, Proc. Zool. Soc. Lond., 1837, 22 (Montevideo, Uruguay; coll. Zool. Soc. Lond.).—*Hirundo gouldii* Cassin, Proc. Ac. Nat. Sci. Phila., 1850, 69 (new name for *H. frontalis* Gould, preoccupied).

^b *P[etrochelidon] meyeri* Cabanis, Mus. Hein., i, 1850, 48 (Chile).—*Hirundo meyeri* Baird, Review Am. Birds, 1865, 302.—*Tachycineta meyeri* Sharpe, Cat. Birds Brit. Mus., x, 1885, 116; Sharp and Wyatt, Mon. Hirund., 1894, 153, pl. 23.

^c Sixteen specimens.

width of bill at frontal antiæ, 4-5 (4.7); tarsus, 11.5-13 (12); middle toe, 10.5-12 (11.6).^a

Young.—Above, including sides of head and neck, uniform soft dark mouse gray, the tertials margined terminally with brownish white, beneath white, usually faintly shaded across chest with pale grayish brown.

North America in general; north to Alaska (Kowak River, Fort Yukon, etc.), Mackenzie (Fort Simpson, Fort Norman) and Ungava (Fort Chimo); breeding southward to Virginia (King William County; Smiths Island), Mississippi (Jackson), Kansas, Colorado, Utah, Nevada, and California; wintering from South Carolina (occasionally northward to New Jersey) and the Gulf States southward to the Bahamas (New Providence Island), Cuba (occasional only?) and over greater part of Mexico to highlands of Guatemala (Dueñas; Pajal Grande; San Gerónimo); occasional in Bermudas; accidental in British Islands.

Hirundo bicolor VIEILLOT, Ois. Am. Sept., i, 1807, 61, pl. 31; Enc. Méth., ii, 1823, 520.—STEPHENS, Shaw's Gen. Zool., x, 1817, 105.—SWAINSON and RICHARDSON, Fauna Bor.-Am., ii, 1831, 328.—AUDUBON, Orn. Biog., i, 1831, 491, pl. 98; Synopsis, 1839, 35; Birds Am., oct. ed., i, 1840, 175, pl. 46.—HURDIS, Jardine's Contr. Orn., 1850, 35 (Bermudas, Sept.).—LEMBEYE, Aves de la Isla de Cuba, 1850, 46, pl. 7, fig. 2.—CABOT, Naumannia, ii, heft. iii, 1853, 65 (Lake Superior).—CASSIN, Illustr. Birds Cal., Tex., etc., 1855, 244.—HENRY, Proc. Ac. Nat. Sci. Philad., 1855, 308 (New Mexico); 1859, 106 (do.).—BRYANT, Proc. Bost. Soc. N. H., vi, 1857, 115 (Nova Scotia).—BREWER, Proc. Bost. Soc. N. H., vi, 1857, 148 (California); N. Am. Ool., 1857, 100, pl. 4 (egg).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 310; Cat. N. Am. Birds, 1859, no. 227; Review Am. Birds, 1865, 297.—XANTUS, Proc. Ac. Nat. Sci.

^a Fourteen specimens.

Eastern specimens compare with western in average measurements as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Width of bill at frontal antiæ.	Tarsus.	Middle toe.	Depth of fork of tail.
MALES.							
Seven adult males from eastern United States.....	118.4	55.6	6.9	5.4	12.3	11.6	9.4
Two adult males from Rocky Mountain district	119.2	58.2	6.2	4.7	12.5	12.2	9.5
Seven adult males from western United States.....	115.9	55.1	5.9	4.6	11.5	11.2	8.7
FEMALES.							
Six adult females from eastern United States.....	114.5	54.7	6.4	4.9	12.2	11.9	8.8
Two adult females from Rocky Mountain district	116.5	55.2	6	4.5	12.2	11.5	7.7
Six adult females from western United States.....	111.5	54	6	4.5	11.8	11.4	7.8

I am not able to perceive any difference in color between eastern and western specimens, both series varying between exactly the same extremes.

- Philad., 1859, 191 (Fort Tejon, California).—BLAND, Ann. Rep. Smithsonian. Inst. for 1858 (1859), 287 (Bermudas).—MARTENS, Journ. für Orn., 1859, 216 (Bermudas).—JONES, Naturalist in Bermuda, 1859, 34.—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 185 (Washington and Oregon).—VERRILL, Proc. Bost. Soc. N. H., ix, 1862, 138 (Anticosti).—BLAKISTON, Ibis, 1862, 4 (Forks of Saskatchewan, May); 1863, 64 (Saskatchewan).—GRAY, Cat. Brit. Birds, 1863, 33.—LORD, Proc. Roy. Art. Inst. Woolw., iv, 1864, 115 (British Columbia).—McILWRAITH, Proc. Essex Inst., v, 1866, 86 (Hamilton, Ontario).—BROWN, Ibis, 1868, 420 (Vancouver I.).—DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 279 (Fort Yukon, Sitka, etc., Alaska; habits).—COOPER, Orn. Cal., 1870, 106.—FINSCH, Abh. Nat. Ver. Brem., iii, 1872, 29 (Alaska).—HARTING, Handb. Brit. Birds, 1872, 125.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 344, pl. 16, fig. 8.—BICKNELL, Auk, i, 1884, 325 (song).
- H[irundo] bicolor* GRAY, Gen. Birds, i, 1845, 58.
- [Hirundo] bicolor* GRAY, Hand-list, i, 1869, 71, no. 842.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 14.—CORY, List Birds W. I., 1885, 10 (Cuba; Bahamas).
- Chelidon bicolor* LESSON, Compl. Buffon, viii, 1837, 494.—BONAPARTE, Comp. and Geog. List, 1838, 8.
- [Hersa] bicolor* BONAPARTE, Consp. Av., i, 1850, 341.
- T[achycineta] bicolor* CABANIS, Mus. Hein., i, 1850, 48, footnote.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 344.—RIDGWAY, Man. N. Am. Birds, 1887, 461.
- Tachycineta bicolor* BONAPARTE, Compt. Rend., xxxviii, 1854, 651.—GUNDLACH, Journ. für Orn., 1856, 4 (Cuba); 1861, 330 (do.); 1874, 113 (do.).—SUMICHRIST, Mem. Bost. Soc. N. H., i, 1869, 547 (plateau reg. Vera Cruz).—ALLEN, Bull. Mus. Comp. Zool., ii, 1871, 269 (St. Johns R., Florida, in winter).—COTES, Check List, 1873, no. 112; Birds N. W., 1874, 86; Birds Col. Val., 1878, 413.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 16, fig. 8.—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 271 (Mazatlan, Sept.).—HENSCHAW, Zool. Exped. W. 100th Merid., 1875, 217 (Fairfield and Provo, Utah; South Park, Colorado).—RIDGWAY, Orn. 40th Parallel, 1877, 441 (Sacramento, California; Carson City, Truckee Valley, etc., Nevada; Parleys Park, Utah; habits); Nom. N. Am. Birds, 1881, no. 155; Orn. Illinois, i, 1889, 209.—BREWSTER, Bull. Nutt. Orn. Club, iii, 1878, 63 (descr. young).—KUMLIEN, Bull. U. S. Nat. Mus., no. 15, 1879, 74 (off Belle Isle, Aug.).—CORY, Birds Bahama I., 1880, 80; Auk, iii, 1886, 57, Birds W. I., 1889, 71; Cat. W. I. Birds, 1892, 115 (Cuba; New Providence I., Bahamas).—SCOTT, Bull. Nutt. Orn. Club, vi, 1881, 115 (Squam Beach, New Jersey, Nov. 16); iv, 1879, 93 (Twin Lakes, Colorado, breeding).—HAY, Bull. Nutt. Orn. Club, vii, 1882, 91 (Jackson, Mississippi, summer).—BEDDING, Proc. U. S. Nat. Mus., v, 1883, 537 (La Paz, Lower California, winter).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 234 (Dueñas, Pajal Grande, and San Gerónimo, Guatemala, etc.).—McLENNAN, Cruise "Corwin," 1884, 115 (Kowak R., Alaska, breeding).—TURNER, Proc. U. S. Nat. Mus., viii, 1885, 239 (near Fort Chimo, Ungava, breeding).—SHARPE, Cat. Birds Brit. Mus., x, 1885, 117, 631 (Fort Norman, Fort Simpson, Lake of the Woods, etc., British America, etc.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 614.—TOWNSEND, Auk, iv, 1887, 13 (Kowak R., Alaska).—CHAPMAN, Auk, vi, 1889, 303 (Englewood, New Jersey, Dec. 31, 1882; "thousands" feeding on berries of *Myrica cerifera*); Bull. Am. Mus. N. H., iii, 1890, 149 (coast British Columbia; crit.); x, 1898, 27 (Jalapa, Vera Cruz).—PALMER (W.), Proc. U. S. Nat. Mus., xiii, 1890, 265 (Magdalen and

Mingan islands); Auk, xiv, 1897, 408 (Smiths I. and King William County, Virginia, breeding).—CLARKE (W. E.), Auk, vii, 1890, 322 (Fort Churchill, Hudson Bay).—DWIGHT, Auk, x, 1893, 12 (Prince Edward I., breeding).—NEHRING, Our Native Birds, etc., i, 1893, 353, pl. 18, fig. 6.—SHARPE and WYATT, Mon. Hirund., 1894, 155, 189, pl. 24.—WAYNE, Auk, xii, 1895, 184 (coast South Carolina, Jan.).—GRINNELL, Auk, xv, 1898, 129 (Sitka, Alaska breeding).—CHILDS, Auk, xvii, 1900, 67 (Barnegat, New Jersey; "millions" passing in Sept.).—BREWSTER, Bull. Mus. Comp. Zool., xli, 1902, 166 (occurrence in Cape district of Lower California requires confirmation!).

[*Tachycineta*] *bicolor* COUES, Key N. Am. Birds, 1872, 113.

Tachycinetes bicolor SCOTT (W. E. D.), Bull. Nutt. Orn. Club, iv, 1879, 223 (Long Beach, New Jersey, breeding).

Petrochelidon bicolor CASSIN, Cat. Hirund. Mus. Philad. Acad., 1853, 4.—SCLATER, Proc. Zool. Soc. Lond., 1857, 201 (San José, Mexico); 1859, 364 (Jalapa, Vera Cruz); Cat. Am. Birds, 1862, 40.—SCLATER and SALVIN, Ibis, 1859, 13 (Guatemala).—BREWER, Proc. Bost. Soc. N. H., vii, 1860, 306 (Cuba).

Iridoprocne bicolor COUES, Check List, 2d ed., 1882, no. 160.—DREW, Bull. Nutt. Orn. Club, vi, 1881, 88, 115 (San Juan Co., Colorado, breeding).—MERRIAM, Bull. Nutt. Orn. Club, vii, 1882, 235 (Point de Monte, Quebec, breeding).

[*Iridoprocne*] *bicolor* COUES, Key N. Am. Birds, 2d ed., 1884, 322.

Hirundo viridis WILSON, Am. Orn., v, 1812, 49, pl. 38, fig. 3.—DE WITT CLINTON, Ann. Lyc. N. Y., i, 1824, 159.—AUDUBON, Ann. Lyc. N. Y., i, 1824, 167.—BONAPARTE, Journ. Ac. Nat. Sci. Philad., iv, 1825, 257.

Hir[undo] viridis BOIE, Isis, 1826, 971; 1828, 316.

Hirundo leucogaster STEPHENS, Shaw's Gen. Zool., x, 1817, 106 (based on *H. viridis* Wilson).

[*Hirundo*] *leucogastra* BOIE, Isis, 1844, 171.

Hirundo prasina LICHTENSTEIN, Preis-Verz. Mex. Vög., 1831, 2 (Mexico); Journ. für Orn., 1863, 58.

- *Hirundo bicolor*, var. *respertina* COOPER, Proc. Cal. Acad. Sci., Feb. 1876, 91 (California); Proc. U. S. Nat. Mus., ii, 1880, 246.

• IRIDOPROCNE ALBILINEA (Lawrence).

MANGROVE SWALLOW.

Adults (sexes alike).—Pileum, auricular region, hindneck, sides of neck, back, scapulars, and lesser wing-coverts uniform greenish steel blue or bluish green; rump white or grayish white, the feathers usually with dusky shaft-lines; upper tail-coverts dusky, more or less strongly glossed with bluish green, and often margined with white or pale grayish; wing-coverts black, the middle coverts margined with greenish steel blue or steel green; rest of wings, and tail, dull black or dusky, faintly glossed with greenish; tertials broadly margined terminally and for most of the length of outer web with white;^a a white line, more or less distinct, on each side of forehead, above upper margin of lores; malar region and entire under parts white, the chest usually faintly shaded with pale grayish and sometimes indistinctly and very narrowly streaked with darker; under wing-coverts and axillars white

^aThese white edgings always present in this species unless the plumage is greatly abraded.

or grayish white; bill black; iris brown; legs and feet blackish or dusky horn color.

Young.—Above soft dark drab gray, sometimes faintly glossed with greenish; rump dull white, and tertials edged and margined terminally with white; a white supraloral line, as in adults; under parts usually faintly tinged with pale brown on chest and sides of breast.

Adult male.—Length (skins), 105–124 (114.5); wing, 95–105 (98.3); tail, 40–46 (42.4); exposed culmen, 7–8 (7.1); width of bill at frontal antiae, 6–7 (6.1); tarsus, 10–11 (10.9); middle toe, 9–11 (9.8).^a

Adult female.—Length (skins), 106–120 (114.4); wing, 92–99 (95.5); tail, 40–44 (41.6); exposed culmen, 7–8 (7.5); width of bill at frontal antiae, 6–7 (6.3); tarsus, 11; middle toe, 10.^b

Coast districts of middle Mexico, in State of Vera Cruz (Gutierrez Zamora, etc.), and Sinaloa (Mazatlan) southward through southeastern Mexico (including Yucatan) and Central America (both coasts) to Isthmus of Panama, and along Pacific coast of South America as far as northern Peru (Chepen).^c

Petrochelidon leucoptera (not *Hirundo leucoptera* Gmelin) LAWRENCE, Ann. Lyc. N. Y., vii, 1862, 317 (Panama).

Petrochelidon albilinea LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., viii, May, 1863, 2 (Panama; coll. G. N. Lawrence).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 347 (Panama).—SALVIN, Ibis, 1866, 192 (Guatemala to Panama, both coasts).

Hirundo albilinea BAIRD, Review Am. Birds, 1865, 300 (Mazatlan, w. Mexico; San José, Guatemala; Panama R. R.).—ZELEDON, Cat. Av. Costa Rica, 1882, 5.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, pl. 15, fig. 1.

^a Fifteen specimens.

^b Eight specimens.

Specimens from different localities average in measurements as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Width of bill at frontal antiae.	Tarsus.	Middle toe.
MALES.						
Five adult males from eastern Mexico (State of Vera Cruz).....	100.2	42.8	7	6	11	10
Four adult males from western Mexico (Tepic and Sinaloa).....	97	42.5	7	6	10.8	10
Two adult males from Yucatan.....	100.5	43.5	7	6	11	9
One adult male from Guatemala.....	96	42	7	6	11	10
Two adult males from Nicaragua.....	96	40.5	7.5	6.5	10.5	9
One adult male from Isthmus of Panama.....	97	42	.....	6	11	11
FEMALES.						
Two adult females from eastern Mexico (Vera Cruz).....	97	42.5	7	6	11	10
One adult female from Oaxaca.....	99	44	8	7	11	10
Two adult females from Tabasco.....	95	41	8	6	.....	.....
One adult female from Yucatan.....	92	41	8	7	11	10
One adult female from Nicaragua.....	94	41	7	6	11	10
One adult female from Costa Rica.....	95	40	7	6	11	10

^c I have not seen specimens from south of the Isthmus of Panama.

- [*Hirundo*] *albilinea* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 14.
Tachycineta albilinea LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 271 (Mazatlan, resident; habits).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 235 (Belize R. and coast cays, British Honduras; Peten, Yaxha, Rio Dulce, Huamuchal, Chiapam, and San José, Guatemala; La Union, Salvador; Amapala, Honduras; Corinto, Nicaragua; Matachin, Isthmus Panama, etc.).—NUTTING, Proc. U. S. Nat. Mus., vi, 1884, 392 (Ometepe, Nicaragua).—SHARPE, Cat. Birds Brit. Mus., x, 1885, 115, 631 (Vera Cruz, Mexico; Belize R., British Honduras; Chiapam, Guatemala; Punta Arenas, Costa Rica; Panama and Lion Hill, Panama, R. R.; Chepen, Peru).—ZELEDON, Anal. Mus. Nac. Costa Rica, i, 1887, 107 (Costa Rica).—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 486 (Rio Frio, Costa Rica).—SHARPE and WYATT, Mon. Hirund., 1894, 149, 188, pl. 22.—BANGS, Auk, xviii, 1901, 368 (David, Chiriquí).
T[achycineta] albilinea RIDGWAY, Man. N. Am. Birds, 1887, 462.
[Hirundo] albilineata GRAY, Hand-list, i, 1869, 71, no. 845.
Petrochelidon littorea SALVIN, Proc. Zool. Soc. Lond., 1863, 189* (Belize River, British Honduras; coll. Salvin and Godman).^a
Hirundo leucopygia (not *H. leucopygia* Meyen) TACZANOWSKI,^b Proc. Zool. Soc. Lond., 1880, 192 (Chepen, n. Peru, alt. 400 ft.); Orn. du Pérou, i, 1884, 240.

Genus TACHY CINETA Cabanis.

Tachycineta ^c CABANIS, Mus. Hein., i, 1850, 48. (Type, *Hirundo thalassina* Swainson.)

Small or medium-sized Hirundinidæ (wing, 99–125 mm.) with narrow, operculate nostrils opening laterally; frontal feathers not reaching to anterior end of nostrils; tail about two-fifths as long as wing, forked for about one-fifth its length; lateral toes, relatively short and weak, their claws falling decidedly short of base of middle claw; upper parts soft (not glossy) green, bronze, and violet, under parts and sides of head white.

Bill small, weak and much depressed, its width at frontal antiæ about equal to length of exposed culmen, the latter nearly equal to distance from nostril to eye; culmen nearly straight for basal half, then gradually decurved, the tip of the maxilla narrowly and distinctly uncinatè; maxillary tomium straight, its subterminal notch distinct. Nostril opening laterally, longitudinal, narrowly ovate-elliptical, overhung by a broad membranous operculum, the feathering of frontal antiæ extending forward about as far as middle of nostrils. Rictal bristles distinct, extending decidedly beyond edge of maxillary tomium. Tail much less than half as long as wing, emarginate, the depth of emargination about one-fifth its total length, the lateral rectrices broad to near end, where the inner web is rather abruptly contracted, the tip obtusely pointed. Tarsus longer than middle toe (without claw), the upper portion feathered in front and on sides, the feathering on

^a According to Sharpe, Cat. Birds Brit. Mus., x, 1885, 631.

^b Described as a new species, from Stolzmann's manuscript.

^c "Von *ταχυκίνητος* sich schnell bewegend."

inner side occupying the upper half or more; lateral toes relatively short and weak, their claws falling decidedly short of base of middle claw; basal phalanx of middle toe united to that of outer toe by about half its length, to inner toe by nearly as much.

Coloration.—Above opaque (not glossy) metallic green, bronze, and violet; under parts, together with auricular region, white.

Nidification.—Nest in holes of trees or cliffs, composed of fine grasses, feathers, etc.; eggs immaculate white.

Range.—Western North America, and southward to Costa Rica. (Monotypic.)

This genus is related to both *Iridoprocne* and *Callischelidon*, but is sufficiently distinct.

KEY TO THE SUBSPECIES OF TACHYGINETA THALASSINA.

- a. Back, etc., metallic (not burnished) green, bronze, or purplish. (Adults.)
 - b. Larger (adult male averaging wing 123.5, tail 50.5; adult female averaging wing 113.3, tail 47.2); back and scapulars usually purple (rarely green in female); upper tail-coverts green. (Mexican plateau.)

Tachycineta thalassina thalassina, adults (p. 93)

- bb. Smaller (adult male averaging wing less than 116, tail 46 or less; adult female averaging wing less than 110, tail less than 44); back and scapulars usually green (very rarely purplish); upper tail-coverts blue, violet, and purple.
- c. Larger (wing averaging 115.2 in adult male, 109.7 in adult female; tail 46 in adult male, 43.7 in adult female). (Western North America, from western Texas, New Mexico, Arizona, etc., to the Yukon Valley, Alaska; south to Guatemala in winter.) *Tachycineta thalassina lepida*, adults (p. 95)
- cc. Smaller (wing averaging 105.2 in adult male, 101.1 in adult female; tail 42.8 in adult male, 40.8 in adult female). (Southern Lower California.)

Tachycineta thalassina brachyptera, adults (p. 98)

- aa. Back, together with other upper parts, sooty grayish brown. (Young.)^a

TACHYGINETA THALASSINA THALASSINA (Swainson).

MEXICAN VIOLET-GREEN SWALLOW.

Adult male.—Pileum and hindneck soft bronze-green; back scapulars and lesser wing-coverts soft purplish green to indian purple; median portion of rump and upper tail-coverts soft dark bottle green, sometimes tinged with blue; wings (except lesser coverts) and tail black or dusky, faintly glossed with bluish; lores pale gray, darker next to eyes; a spot above eye, auricular region (the two confluent), suborbital region, malar region, entire under parts, and patch on each side of rump pure white; axillars and under wing-coverts pale gray, the latter becoming white on edge of wing; bill black; iris brown; legs and feet dark brownish (in dried skins); length (skins), 122–125 (123.5); wing, 122–125 (123.5); tail, 50–51 (50.5); exposed culmen, 6; width

^aThe young of *T. t. lepida* and *T. t. brachyptera*, only, seen; these do not differ in coloration.

of bill at frontal antiæ, 5; tarsus, 11-12 (11.5); middle toe, 10-11 (10.5).^a

Adult female.—Similar to the adult male but much duller in color; pileum and hindneck varying from bronzy green to bronzy purple; back and scapulars varying from dull bronzy green to dull bronzy purple (usually the latter), the back becoming green across upper margin; middle line of rump and upper tail-coverts dull green; auricular region and supraorbital spot mottled with gray; otherwise like the adult male, but white of under parts less pure, more or less tinged with pale gray anteriorly; length (skins), 113-123 (118.7); wing, 110-116 (113.3); tail, 46-48.5 (47.2); exposed culmen 5.5-6 (5.7); width of bill at frontal antiæ, 4-5 (4.3); tarsus, 11-12 (11.7); middle toe, 10-11 (10.3).^a

Mexican plateau, north to State of Chihuahua,^b south to States of Vera Cruz (Orizaba, etc.), Mexico (Valley of Mexico), and Oaxaca (Mitla).^c

Hirundo thalassinus SWAINSON, Philos. Mag., new ser., i, 1827, 366 (Real del Monte, Hidalgo, Mexico; coll. Bullock Mus.); Isis, 1834, 783.

Hirundo thalassina BONAPARTE, Geog. and Comp. List, 1838, 9, part.—BAIRD, Review Am. Birds, 1865, 299, part (Mexico; Orizaba, Vera Cruz).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 347, part.

Hir[undo] thalassina BOIE, Isis, 1844, 171.

H[irundo] thalassina GRAY, Gen. Birds, i, 1845, 58.

[*Hirundo*] *thalassina* GRAY, Hand-list, i, 1869, 71, no. 841.—COUES, Key N. Am. Birds, 1872, 113, part.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 14, part.

Cecropis thalassinus LESSON, Compl. Buffon, viii, 1837, 499.

[*Herse*] *thalassina* BONAPARTE, Consp. Av., i, 1850, 341, part.

T[achycineta] thalassina CABANIS, Mus. Hein., i, 1850, 48 (Mexico).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 344, part.—COUES, Key N. Am. Birds, 2d ed., 1884, 323, part.—RIDGWAY, Man. N. Am. Birds, 1887, 462, part.

^a Three specimens.

^b Two specimens from Chihuahua (exact locality unknown) in the collection of the American Museum of Natural History are similar to typical examples from the Valley of Mexico in coloration, but are smaller. Their measurements are as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Width of bill at frontal antiæ.	Tarsus.	Middle toe.
No. 56756, Am. Mus., male	118	50	6	4	10.5	10
No. 56755, Am. Mus., female (labeled male, but undoubtedly a female)	111	45	5	3.5	11	10

^c An adult female from Mitla in the Biological Survey collection (no. 143514, U. S. Nat. Mus.), collected June 28, agrees with typical *T. thalassina* in larger size, and green instead of blue or purplish upper tail-coverts, but has the back and scapulars bronze green, without any purplish tinge.

Tachycineta thalassina BONAPARTE, Compt. Rend., xxxviii, 1857, 651.—SUMICHRIST, Mem. Bost. Soc. N. H., i, 1869, 547 (hot and temperate zones, Vera Cruz).—COUES, Birds N. W., 1874, 86, part; Birds Col. Val., 1878, 419, part.

Tachycineta thalassinus SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 233, part (Real del Monte; Valley of Mexico; Hacienda de Tupátero; Orizaba; temperate and hot regions, Vera Cruz).—SHARPE, Cat. Birds Brit. Mus., x, 1885, 119, 631, part (Puebla; Mexico; Presidio, near Mazatlan? Ciudad Durango?).—SHARPE and WYATT, Mon. Hirund., 1894, 175, part, pl. 25.

Petrochelidon thalassina CASSIN, Cat. Hirund. Mus. Phila. Acad., 1853, 5, part.—SCLATER, Cat. Am. Birds, 1882, 39 (Mexico); Proc. Zool. Soc. Lond., 1864, 173 (City of Mexico).

TACHYCNETA THALASSINA LEPIDA (Mearns).

VIOLET-GREEN SWALLOW.

Similar to *T. t. thalassina*, but smaller; back more often green than purplish, and rump' and upper tail-coverts bluish green, blue, or (usually) mixed greenish blue and violet, instead of bronzy green.

Adult male.—Pileum and hindneck varying from bronzy green to purplish bronze, the lower margin of the hindneck more purplish, often forming a distinct narrow collar; back, scapulars, and lesser wing-coverts soft bronzy green, usually more or less tinged with purple or purplish bronze—rarely strongly overlaid by the former; median portion of rump, and upper tail-coverts, varying from bluish green (rarely) to rich violet-purple mixed with blue, usually mixed greenish blue and violet; wings (except lesser coverts) and tail blackish, faintly glossed with blue; lores grayish, becoming blackish next to eye; supraorbital spot, auricular region, entire under parts, and conspicuous patch on each side of rump pure white; under wing-coverts pale gray, becoming white on edge of wing; bill black; iris brown; legs and feet brownish; length (skins), 106–126 (116.1); wing, 108–120 (115.2); tail, 44–51 (46); exposed culmen, 4.5–5.5 (5.2); width of bill at frontal antæ, 4–4.5 (4); tarsus, 10–11 (10.6); middle toe, 9–11 (10.1).^a

Adult female.—Much duller in color than the male; pileum and hindneck varying from grayish brown, very faintly glossed with bronze or bronzy green, to decided greenish or purplish bronze; auricular region and supraorbital spot mottled with gray; otherwise similar to the adult male, but green, bronzy, and purple colors of upper parts usually much less bright, and white of anterior under parts less pure, often tinged with pale gray; length (skins), 105–115 (111.1); wing, 106–115 (109.7); tail, 42–46 (43.7); exposed culmen,

^aTwenty-three specimens.

5-5.5 (5.1)^b width of bill at frontal antiæ, 4; tarsus, 10-11 (10.6); middle toe, 9.5-11 (10.1).^a

Young.—Above plain sooty grayish brown, darker on back, where faintly glossed with purple, violet, or bronze; a white patch on each side of rump, as in adults; lores dusky gray; auricular region and postocular spot mottled sooty brown and grayish white, or uniformly of the former color; under parts grayish white anteriorly, pure white posteriorly, the chest usually tinged with sooty brown, especially laterally, where sometimes with a distinct narrow transverse patch of brown.^b

In winter plumage adults have the tertials conspicuously margined with white.

Western North America; north to Alaska (Yukon Valley, Fifty Mile River, Fort Selkirk, Semenow Hills, etc.), east to Montana, Wyoming, Colorado, New Mexico, and western Texas—occasionally to South Dakota; breeding southward to southern California,^c Arizona, and New Mexico; in winter south to highlands of Guatemala (Dueñas; San Gerónimo; Coban; Hacienda Chancol), and Costa Rica (Matina River, Atlantic side; Bebedero, Pacific side).

Hirundo thalassina (not of Swainson) ORNITHOLOGICAL COMMITTEE, Journ. Ac. Nat. Sci. Philad., vii, 1837, 193 (Columbia R.).—AUDUBON, Orn. Biogr., iv, 1838, 597, pl. 385, figs. 4, 5; Synopsis, 1839, 36; Birds Am., oct. ed., i, 1840, 186, pl. 49.—BONAPARTE, Geog. and Comp. List, 1838, 9, part.—WOODHOUSE, Rep. Sitgreaves' Exp. Zuffi, etc., 1853, 64.—CASSIN, Illustr. Birds Cal., Tex.,

^aTen specimens.

Specimens from different parts of the country average in measurements as follows:

Locality.	Wing.	Tail.	Ex- posed Culmen.	Width of bill at frontal antiæ.	Tarsus.	Middle toe.
MALES.						
Ten adult males from California.....	114.5	45.9	5	4.1	10.4	10
Four adult males from Vancouver Island.....	115.2	45.6				
Four adult males from Alaska and Northwest Territory.....	113.5	45.5	5.1	4	10.7	10.5
Five adult males from Colorado, Wyoming, and Utah.....	117.8	47	5	4	10.8	10.1
FEMALES.						
Six adult females from California.....	110.8	43.2	5	4	10.7	10.2
Two adult females from Alaska and Northwest Territory.....	107	43.5	5.2	4	10.7	10.7
Two adult females from Colorado and Utah.....	109	45.5	5.2	4	10.5	9.7

^bThe young of this species considerably resembles that of *Iridoprocne bicolor*, but may readily be distinguished by the grayish white instead of pure white throat, etc., the white patch on each side of rump, and the much less abrupt definition of the sooty color of the upper part of the head against the white below it.

^cProbably to northern Lower California (San Pedro Martir Mountains), but I have not seen specimens from there.

- etc., 1855, 245.—HENRY, Proc. Ac. Nat. Sci. Philad., 1855, 308 (New Mexico).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 311; Cat. N. Am. Birds, 1859, no. 228; Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 11 (Saltillo, Nuevo Leon); Review Am. Birds, 1865, 299.—SCLATER, Proc. Zool. Soc. Lond., 1859, 235 (Vancouver I.).—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, ii, 1860, 185 (Puget Sound and throughout int. Washington and Oregon).—LORD, Proc. Roy. Art. Inst. Woolw., iv, 1864, 115 (British Columbia).—BROWN, Ibis, 1868, 421 (Vancouver I.).—COOPER, Orn. Cal., 1870, 107.—ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 149 (Colorado, up to 8,000 ft.).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 347, part.
- [*Hirundo*] *thalassina* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 14, part.
- Hirundo thalassina* TOWNSEND, Journ. Ac. Nat. Sci. Philad., viii, 1839, 155.—GAMBEL, Proc. Ac. Nat. Sci. Philad., iii, 1846, 110.
- Herse thalassina* COUES, Ibis, 1865, 159, 163 (New Mexico; Arizona).
- Tachycineta thalassina* COUES, Proc. Ac. Nat. Sci. Philad., 1866, 72 (Fort Whipple, Arizona); Check List, 1872, no. 113; 2d ed., 1882, no. 161; Birds N. W., 1874, 86, part; Birds Col. Val., 1878, 419, part.—RIDGWAY, Bull. Essex Inst., v, 1873, 181 (Colorado); Orn. 40th Parallel, 1877, 443 (Pyramid Lake and Rutty Mts., Nevada; Salt Lake City, Utah; habits); Nom. N. Am. Birds, 1881, no. 156.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 16, fig. 11.—ALLEN, Proc. Bost. Soc. N. H., xvii, 1874, 53 (habits).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 60, 76, 104 (near Garland, Colorado; Neutria, New Mexico); Zool. Exp. W. 100th Merid., 1875, 217 (Pueblo and Sangre de Cristo Pass, Colorado, etc.); Auk, ii, 1885, 333 (upper Pecos R., New Mexico).—MINOR, Bull. Nutt. Orn. Club, v, 1880, 228 (Boulder Co., Colorado, up to timber line; habits; notes).—DREW, Auk, vi, 1881, 88 (San Juan Co., Colorado, breeding; descr. nest and eggs).—AGESBORG, Auk, ii, 1885, 279 (s. e. South Dakota; "probably accidental; breeds").—LLOYD, Auk, iv, 1887, 294 (Concho Co., w. Texas, Sept., Oct.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 615, part.—SCOTT, Auk, v, 1888, 31 (Catalina Mts., Arizona).—MEARNS, Auk, vii, 1890, 260 (Fort Verde, etc., Arizona; Yellowstone Park and Big Horn R., Montana; habits).—CHAPMAN, Bull. Am. Mus. N. H., iii, 1890, 149 Ashcroft, British Columbia, breeding).—(?) ANTHONY, Zoe, iv, 1893, 243 (San Pedro Martir Mts., Lower California, breeding from 2,500 ft. upward).—(?) CHERRIE, Auk, xii, 1895, 87 (Matina R., Atlantic side, and Bebedero, Pacific side, Costa Rica).—NEHRING, Our Native Birds, etc., i, 1893, 356.—BISHOP, N. Am. Fauna, no. 19, 1900, 88 (Yukon Valley, Fifty Mile R., Fort Selkirk, Semenow Hills, etc., Alaska).
- [*Tachycineta*] *thalassina* COUES, Key N. Am. Birds, 1872, 113.
- [*Tachycineta*] *thalassina* COUES, Key N. Am. Birds, 2d ed., 1884, 323, part.—RIDGWAY, Man. N. Am. Birds, 1887, 462, part.
- Tachycineta thalassinus* SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 233, part (middle and western provinces of North America; Dueñas, a San Gerónimo, and Coban, Guatemala).—SHARPE, Cat. Birds Brit. Mus., x, 1885, 119, 631, part (United States localities and references; Vancouver I.; Dueñas a and San Gerónimo, Guatemala).—SHARPE and WYATT, Mon.

a Sharpe's description (Cat. Birds Brit. Mus., x, p. 120) of the supposed "adult male in winter plumage," from Dueñas, seems more like that of the true *T. thalassina*, which usually has the back purplish instead of green; but the upper tail-coverts and rump are described as being "green and purple" instead of green alone, as in the Mexican resident form. It is possible that both subspecies occur in Guatemala in winter, but of course this can only be determined by examination of specimens.

Hirund., 1894, 175, 191, part (United States, British Columbian, and Guatemalan localities and references).

(?) *Petrochelidon thalassina* (not *Hirundo thalassinus* Swainson?) SCLATER and SALVIN, Ibis, 1859, 13 (Dueñas, Guatemala; abundant in early March).

Tachycineta lepida MEARNS, Proc. Biol. Soc. Wash., xv, March 5, 1902, 31 (Campbell's Ranch, Laguna Mts., 20 miles north of Campo, San Diego Co., California; coll. U. S. Nat. Mus.).—GRINNELL, Pacific Coast Avifauna, no. 3, 1902, 61.

Tachycineta thalassina lepida AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xix, July, 1902, 325.—BREWSTER, Bull. Mus. Comp. Zool., xli, 1902, 167, 169 (La Paz, Lower California, 1 spec., Feb. 14; measurements).

TACHYGINETA THALASSINA BRACHYPTERA Brewster.

SAINT LUCAS VIOLET-GREEN SWALLOW.

Similar to *T. t. lepida*, but decidedly smaller (except feet).

Adult male.—Length (skins), 103–112 (105.7); wing, 101.5–108.5 (105.2); tail, 41–45.5 (42.8), forked for 4.5–7 (5.4); exposed culmen, 4.5–5 (4.8); tarsus, 10.5–11 (10.6).^a

Adult female.—Length (skins), 100–107 (103.3); wing, 99–104 (101.1); tail, 40–42 (40.8), forked for 3–7 (4.5); exposed culmen, 4.5–5 (4.6); tarsus, 10–11 (10.7).^b

Cape district of Lower California (La Paz; Sierra de la Laguna; Triunfo; San José del Cabo).

Hirundo thalassina (not of Swainson) BAIRD, Proc. Ac. Nat. Sci. Phila., 1859, 301, 302 (Cape St. Lucas; crit.); Review Am. Birds, 1865, 299, part (do.).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 347, part (Cape St. Lucas).

Tachycineta thalassina COUES, Birds N. W., 1874, 86, part (Cape St. Lucas); Birds Col. Val., 1878, 419, part (do.).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 156, part.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 615, part (Cape St. Lucas).—BELDING, Proc. U. S. Nat. Mus., v, 1883, 537 (La Paz, Lower California).—(?) ANTHONY, Auk, xii, 1895, 142 (San Fernando, Lower California, breeding).

Tachycineta thalassina brachyptera BREWSTER, Bull. Mus. Comp. Zool., xli, no. 1, Sept. 1902, 167 (Sierra de la Laguna, Lower California; coll. W. Brewster).

Genus CALLICHELIDON Baird.

Callichelidon "Bryant, MSS.," BAIRD, Review Am. Birds, May, 1865, 271, 303. (Type, *Hirundo cyaneoviridis* Bryant.)

Small Hirundinidae (wing not more than 117 mm.) resembling *Tachycineta*, but with frontal feathers extended anteriorly to or beyond anterior end of nasal fossæ, partly covering the nasal opercula; the bill much thicker and broader, the tail more than half as long as wing, forked for more than one-third its length, the lateral rectrices distinctly narrowed terminally, the inner side of tarsus entirely naked, the lateral toes longer and stronger, their claws reaching nearly or quite to base of middle claw, and sides of rump without white tuft.

^aTen specimens.

^bSix specimens.

Bill short, broad, and thick, its width at frontal antiæ equaling or exceeding length of exposed culmen, the latter much less than distance from nostril to eye; depth of bill at nostrils much more than half its width at same point; tip of maxilla very slightly uncinatè, the tomium straight, with subterminal notch small but distinct; nostril small, longitudinally ovate, only the edge of the overhanging operculum showing beneath the feathering of the frontal antiæ. Rictal bristles distinct. Tail more than half as long as wing, forked for more than one-third its length, the lateral rectrices rather narrow and distinctly contracted terminally, their tip obtusely pointed. Tarsus longer than middle toe (without claw), the inner and posterior portions entirely naked, the extreme upper portion feathered for a short distance in front; basal phalanx of middle toe united to that of outer toe by about half its length or a little more, to the inner toe by nearly as much; claws of lateral toes reaching nearly to base of middle claw.

Coloration.—Above soft (not glossy) green, becoming blue or violet on rump and upper tail-coverts, the plumage structurally similar to that of *Tachycineta*; no white tuft on sides of rump; under parts entirely white.

Nidification.—(Unknown.)

Range.—Bahama Islands. (Monotypic.)

CALLICHELIDON CYANEOVIRIDIS (Bryant).

BAHAMA SWALLOW.

Adult male.—Pileum, hindneck, back, and scapulars, plain soft (not glossy) metallic dull bottle green, changing to soft metallic bluish myrtle green or greenish blue on lesser wing-coverts, rump, and upper tail-coverts; middle and greater wing-coverts and tertials dusky greenish blue, broadly margined with lighter and brighter greenish blue or bluish green; alula, primary coverts, primaries, secondaries, and rectrices dark greenish blue narrowly edged with lighter greenish blue or bluish green, the lateral rectrices very narrowly edged with whitish, their inner webs more broadly but less sharply edged with the same; lores dusky; auricular, suborbital and malar regions, axillars, under wing-coverts and entire under parts pure white; bill black; iris brown; legs and feet brownish black or blackish brown; length (skins), 139–150 (145.6); wing, 113–117 (115); tail, 66–73 (67.9), forked for 25–31 (27.1); exposed culmen, 6–7 (6.4); tarsus, 11.5–12 (11.8); middle toe, 10–11 (10.8).^a

Adult female.—Similar to the male, but more or less duller in color, with white of auricular region (sometimes that on sides of breast—more rarely that on center of chest) mottled with grayish brown; length (skins), 130–140 (135); wing, 105–109 (107.5); tail, 59–61 (59.5),

^aSeven specimens.

forked for 19-22 (20.5); exposed culmen, 6.5-7 (6.7); tarsus, 11-12 (11.5); middle toe, 10-11 (10.5).^a

Young.—Brown above with a strong luster of oily green, a little more pronounced on the back and wing-coverts; head and upper tail-coverts more sooty brown, as also the upper margin of the ear-coverts; cheeks, ear-coverts, and under surface of body white, with a patch of sooty brown on the sides of the upper breast.^b

Bahamas (Great Bahama, Abaco, Berry Islands, Eleuthera, New Providence, Andros, Cay Sal, and Anguilla islands); accidental in southern Florida (Garden Key, Dry Tortugas, April 7, 1890; Tarpon Springs, September 3, 1890).

Hirundo cyaneoviridis BRYANT, Proc. Bost. Soc. Nat. Hist., vii, 1859, 111 (Nassau, New Providence, Bahamas; type in coll. U. S. Nat. Mus.).—BAIRD, Review Am. Birds, 1865, 303.—SALVIN, Ibis, 1874, 307 (crit.).—CORY, Birds Bahama Islands, 1880, 79.

[*Hirundo*] *cyaneoviridis* GRAY, Hand-list, i, 1869, 72, no. 850.—CORY, List Birds W. I., 1885, 10.

Callichelidon cyaneoviridis BAIRD, Review Am. Birds, May, 1865, 297, in text.—CORY, Auk, iii, 1886, 59; viii, 1891, 294 (New Providence), 295 (Berry Islands), 350 (Great Bahama; Abaco), 352 (Anguilla; Cay Sal); Birds W. I., 1889, 73; Cat. W. I. Birds, 1892, 16, 115, 127 (Great Bahama, Abaco, New Providence, Andros, Cay Sal, and Anguilla islands, Bahamas).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, viii, 1891, 87; Check List, 2d ed., 1895, no. 615.1.—RIDGWAY, Auk, viii, 1891, 334 (Abaco I.).—BREWSTER, Auk, xiv, 1897, 221 (Tarpon Springs, Florida, 1 spec., Sept. 3, 1890).—BANGS, Auk, xvii, 1900, 288 (New Providence and Eleuthera islands).

[*Callichelidon*] *cyaneoviridis* BAIRD, Review Am. Birds, 1865, 303.

C[allichelidon] cyaneoviridis BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 338, footnote.—RIDGWAY, Man. N. Am. Birds, 1887, 462.

Callichelidon cyaneoviridis SCOTT, Auk, vii, July, 1890, 265 (Garden Key, Dry Tortugas, Florida, 1 spec., Apr. 7, 1890), 312 (Dry Tortugas).—NORTHROP, Auk, viii, 1891, 70 (New Providence and Andros islands; habits).

Hirundo (*Callichelidon*) *cyaneoviridis* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 327, footnote.

Tachycineta cyaneoviridis SHARPE, Cat. Birds Brit. Mus., x, 1885, 121, 631.—SHARPE and WYATT, Mon. Hirund., 1894, 185, 193, pl. 26.

Genus LAMPROCHELIDON, new genus.

Kalochelidon (not *Callichelidon* Baird, 1865) BRYANT, Proc. Bost. Soc. Nat. Hist., xi, Dec. 2, 1866, 95. (Type, *Hirundo euchrysea*, var. *dominicensis* Bryant, = *H. sclateri* Cory.)

Lamprochelidon c RIDGWAY. (Type, *Hirundo euchrysea* Gosse.)

Small Hirundinidæ (wing not more than 116 mm.) with nostrils almost concealed by superincumbent feathering of frontal antiæ, the tail less than half as long as wing and forked for less than one-fourth its length, the upper parts and under wing-coverts burnished metallic golden or bronzy green, the under parts white.

^aFour specimens.

^bSharpe, Cat. Birds Brit. Mus., x, 1885, 121.

^cFrom *Δαμπρός*, shining; *χελιδών*, a swallow.

Bill very small (length of exposed culmen not more than half the distance from nostril to eye), much depressed, its width at frontal antiæ somewhat less than length of exposed culmen, and about twice its depth at same point; exposed culmen slightly curved from the base, more decidedly so terminally, the tip of the maxilla minutely but distinctly uncinate; maxillary tomium nearly straight, the sub-terminal notch distinct. Nostril longitudinally ovate, almost concealed by superincumbent feathering of frontal antiæ, no overhanging operculum being visible. Rictal bristles few and short, almost obsolete. Tail less than half as long as wing; forked for less than one-fourth its length, the lateral rectrices contracted in width only near tip, the latter obtusely rounded. Tarsus longer than middle toe without claw, entirely naked except for a very small portion of the upper end in front; basal phalanx of middle toe united to that of outer toe for most of its length, to the inner by about half its length; claws of lateral toes reaching nearly to base of middle claw.

Coloration.—Adults with upper parts burnished or highly glossy green or golden, the under wing-coverts and axillars similar but darker; under parts white.

Nidification.—(Unknown.)

Range.—Islands of Haïti and Jamaica, Greater Antilles. (Two species.)

KEY TO THE SPECIES OF LAMPROCHELIDON.

- a. Upper tail-coverts golden green; back and scapulars greenish bronze, golden or coppery; wing-coverts and tertials margined with golden green or golden bronze; smaller, with tail less deeply forked (adult male with wing 110, tail 55, forked for 11). (Island of Jamaica.) *Lamprochelidon euchrysea* (p. 101)
- aa. Upper tail-coverts bluish green; back and scapulars golden green to bluish green; wing-coverts and tertials margined with bluish green; larger, with tail more deeply forked (adult male with wing 116, tail 58, forked for 15). (Island of Haïti) *Lamprochelidon sclateri* (p. 102)

LAMPROCHELIDON EUCHRYSEA (Gosse).

GOSSE'S SWALLOW.

Adult male.—Above, including sides of head down to and including chin and malar region, highly glossed or burnished metallic bronzy green, the back and scapulars more golden bronze, changing to coppery bronze in certain lights; greater and primary wing-coverts, alula, remiges, and rectrices dusky greenish bronze or bronze-dusky, the first, together with the tertials, conspicuously edged with golden (varying to coppery) bronze; under parts pure white, the outer portion of sides and flanks streaked or longitudinally clouded with dusky bronze; axillars and under wing-coverts dusky, broadly margined with greenish bronze or bronze green; bill black; iris brown; legs and feet dark brownish; length (skin), 115; wing, 110; tail, 55, forked for 11; exposed culmen, 4; tarsus, 9.5; middle toe, 8.^a

^a One specimen.

Adult female.—Similar to the adult male, but chest (sometimes throat also) spotted or mottled with grayish brown, the under tail-coverts sometimes with a few spots of the same; length (skins), 115–120 (117.5); wing, 102–109 (104.3); tail, 50–52 (51), forked for 9.5–12 (10.5); exposed culmen, 5; tarsus, 9.5–10 (9.7); middle toe, 8.5–9 (8.8).^a

Island of Jamaica, Greater Antilles.

Hirundo euchrysea GOSSE, Birds Jamaica, 1847, 68; Illustr. Birds Jam., 1849, pl. 12.—GRAY, Cat. Fissirostr. Birds Brit. Mus., 1848, 26.—MARCH, Proc. Ac. Nat. Sci. Philad., 1863, 295.—BAIRD, Review Am. Birds, 1865, 304 (Trelawney and Spanishtown, Jamaica).—CORY, Cat. W. I. Birds, 1892, 17, 115, 130.—SHARPE, Cat. Birds Brit. Mus., x, 1885, 170, 632.—SHARPE and WYATT, Mon. Hirund., 1894, 407, 428, pl. 76.

[*Hirundo*] *euchrysea* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 14.—CORY, List Birds W. I., 1885, 10.

[*Herse*] *euchrysea* BONAPARTE, Consp. Av., i, 1850, 34.

Petrochelidon euchrysea SCLATER, Proc. Zool. Soc. Lond., 1861, 72; Cat. Am. Birds, 1862, 39.—ALBRECHT, Journ. für Orn., 1862, 194.

[*Callichelidon*] *euchrysea* BAIRD, Review Am. Birds, 1865, 303.

[*Allichelidon*] *euchrysea* NEWTON (A. and E.), Handb. Jamaica, 1881, 107.

Tachycineta euchrysea CORY, Auk, iii, Jan., 1886, 58; Birds W. I., 1889, 72.—SCOTT, Auk, x, 1893, 181.

[*Hirundo*] *euchrysea* GRAY, Hand-list, i, 1869, 72, no. 849, part (excl. syn. "*var. dominicensis*, Bryant").

LAMPROCHELIDON SCLATERI (Cory).

SCLATER'S SWALLOW.

Similar to *L. euchrysea*, but wings and tail longer, the latter much more deeply forked, and bill much smaller; adults with upper parts much less golden in color, with forehead and upper tail-coverts bluish green and the remiges and rectrices bluish black instead of dark bronzy.

Adult male.—Forehead, crown, sides of head (down to and including malar region), upper tail-coverts and lesser wing-coverts highly glossed or burnished metallic bluish green; occiput, hindneck, back, and scapulars very bright metallic bronze green, gradually changing into the more bluish green of forehead and upper tail-coverts; middle and greater wing-coverts and innermost secondaries black or bluish black, broadly margined with metallic green or bluish green (more bronzy in some lights, but not golden or coppery as in *L. euchrysea*); alula, primary coverts, primaries, outermost secondaries, and rectrices slightly glossy blue-black, the rectrices with outer webs more greenish basally; axillars and under wing-coverts dusky, broadly margined with green and bronze (the latter more evident on axillars); under parts pure white; bill black; iris brown; legs and feet dark brownish (in dried skins); length (skin), 122; wing, 116; tail, 58, forked for 15; exposed culmen, 4.7; tarsus, 10; middle toe, 8.^b

^a Three specimens.

^b One specimen.

Adult female.^a—Similar to the adult male, but slightly smaller, with tail less deeply forked; colors slightly duller, the green above more bluish, that of the back less golden; sides and center of breast with a few small spots or flecks of grayish brown; length (skin), 122; wing, 108; tail, 50, forked for 11; exposed culmen, 4.5; tarsus, 9.5; middle toe, 8.^b

Young male.—Similar to the adult female, as described above, but plumage much softer; pileum, rump, and upper tail-coverts blackish, much less strongly glossed with bluish green (on the first only narrow tips to the feathers glossy); breast more extensively clouded with grayish brown, the entire chest and upper breast sometimes thus marked; sides of head soft (not glossy) grayish dusky.

Island of Haiti, Greater Antilles.

Hirundo euchrysea (var. *dominicensis* ?) (not *Hirundo dominicensis* Gmelin)
BRYANT, Proc. Bost. Soc. N. H., xi, Dec. 2, 1866, 95 (Port au Prince, Haiti;
type in coll. U. S. Nat. Mus.).

Hirundo sclateri CORY, Auk, i, Jan., 1884, 2 (Santo Domingo; coll. C. B. Cory);
Birds Haiti and San Dom., 1885, 45, colored plate; Cat. W. I. Birds, 1892,
16, 115, 131.—SHARPE, Cat. Birds Brit. Mus., x, 1885, 171.—SHARPE and
WYATT, Mon. Hirund., 1894, 409, 426, pl. 77.

[*Hirundo*] *sclateri* CORY, List Birds W. I., 1885, 10.

Tachycineta sclateri CORY, Auk, iii, Jan., 1886, 58; Birds W. I., 1889, 72.

Family AMPELIDÆ.

THE WAXWINGS.

Ten-primaried acutiplantar Oscines with the tenth primary minute (less than half as long as primary coverts); the tail much shorter than the wing, nearly even or slightly rounded; wing rather long and pointed (longest primaries exceeding secondaries by much more than one-third the length of wing, the ninth longer than seventh); loreal feathers dense, soft, velvet-like, filling greater part of the nasal fossæ and almost concealing the nostrils; rictal bristles obsolete; head with a long crest of soft, blended feathers, the plumage in general soft and blended; young in first plumage streaked beneath.

Bill small, rather swollen, slightly hooked and notched at tip; gape broad (its width nearly equal to exposed culmen); gonys less than half as long as mandibular rami, decidedly convex; mandibular rami very narrow. Nostrils nearly concealed by dense, velvety feathering of frontal antiæ, which extend anteriorly beyond the nostril and completely fill the upper portion of the nasal fossæ. Rictal bristles obsolete. Wing long and pointed, the longest primaries exceeding secondaries by much more than length of tarsus (by nearly as much as

^a According to Mr. Cory the sexes are alike; the female described above may, therefore, be a bird of the preceding year.

^b One specimen.

length of tarsus and middle toe together); outermost (tenth) primary rudimentary (less than half as long as primary coverts); ninth primary longest, or at least longer than seventh. Tail less than two-thirds as long as wing, even or very slightly rounded, its coverts unusually long, especially the lower, which reach nearly to end of tail. Tarsus short (shorter than middle toe without claw, less than one-fifth as long as wing), its scutella distinct; lateral toes much shorter than middle toe, the outer rather longer than inner and united to middle toe by about half its basal phalanx. Plumage soft and blended; head with a conspicuous crest of broad, soft, blended feathers; young with under parts streaked.

The Waxwings are a small group of oscinine birds peculiar to the Northern Hemisphere, and embrace only three known species belonging to a single genus; one of them peculiar to North America, another to Japan and neighboring parts of eastern Asia, the third circumpolar in its range.

They have rather long wings, with ten primaries (though the tenth is rudimentary), short, distinctly scutellate tarsi, short, rather broad, and slightly hooked bill, rather short, slightly rounded tail, and the head ornamented by a long, silky crest. They are beautiful birds of most soft, delicately blended colors, two of the three species being further ornamented by horny, drop-shaped tips to the secondaries, resembling red sealing wax.

They are arboreal birds of weak voice, apparently songless, and feed on berries, fruits, and insects.

Genus AMPELIS Linnæus.

Ampelis LINNÆUS, Syst. Nat., ed. 12, i, 1766, 297. (Type, by elimination, *A. garrulus* Linnæus.)

Bombycivora TEMMINCK, Hist. Nat. Pig. et Gal, ii, 1813, 249, footnote; Man. d'Orn., i, 1815, 77. (Type, *Ampelis garrulus* Linnæus.)

Bombiciphora MEYER, Vög. Liv-u. Esthl., 1815, 104. (Type, *B. poliocoelia* MEYER, = *Ampelis garrulus* Linnæus.)

Bombyciphora (emendation) MEYER, Vög. Liv- und Esthlands, 1815, 104; Ann. Wetteran. Gesellsch. für Naturk., iv, heft i, 1819, 90.

Bombycilla VIEILLLOT, Analyse, 1816, 37. (Type, *Ampelis garrulus* Linnæus.)

The structural characters of the genus *Ampelis* are the same as those of the family Ampelidæ, as given on page —. In addition to the characters there enumerated the following may be mentioned here: Crown with a lengthened, pointed crest, of soft, blended feathers; plumage very soft, the feathers of head, neck, and body perfectly blended, the prevailing color a soft fawn-color of vinaceous grayish brown, changing to ashy on rump and upper tail-coverts; prevailing color of wings and tail slaty, the latter sharply tipped with yellow or

red, preceded by blackish; frontal antiæ, lores, streak through eye (running beneath crest, on occiput), and chin (sometimes throat also) velvety black; anterior portion of malar region white. Young much duller than adult, the lower parts streaked with brownish or dull grayish on a whitish ground.

Nidification.—Nest in trees, bulky, constructed of small twigs, rootlets, etc., mixed and lined with feathers and other soft materials. Eggs 3-5, pale dull bluish or pale purplish gray, spotted and dotted with dark brown, black, and purplish.

Range.—Temperate and subarctic portions of Northern Hemisphere. (Three species.)

KEY TO THE SPECIES OF AMPELIS.

- a. Terminal band of tail yellow; greater wing-coverts entirely drab.
 - b. Larger (wing 110-121); forehead and under tail-coverts cinnamon-rufous; primary coverts, outer webs of secondaries and outer webs of primaries tipped with white (the latter sometimes with yellow); throat black. (Circumpolar; south to northern United States in winter.)...*Ampelis garrulus*, adults (p. 105)
 - bb. Smaller (wing 90-99); forehead wood-brown, margined anteriorly by a whitish line; under tail-coverts white; no white nor yellow on primary coverts nor remiges; throat brown. (North America and southward to Costa Rica.)
Ampelis cedrorum, adults (p. 109)
- aa. Terminal band of tail rose red; greater wing-coverts partly brownish red. (North-eastern Asia.).....*Ampelis japonica*, adults (extralimital)^a

AMPELIS GARRULUS Linnaeus.

BOHEMIAN WAXWING.

Adults (sexes alike).—(a) *Perfect plumage*: General color soft drab, becoming gradually more vinaceous or cinnamonaceous anteriorly, more grayish (pale grayish drab or drab-gray) on abdomen, sides, and flanks, the rump and upper tail-coverts nearly pure gray (no. 6); forehead, superciliary region; middle portion of malar region, and under tail-coverts cinnamon-rufous; frontal antiæ, lores, postocular streak, chin, and upper throat velvety black; malar apex and narrow streak immediately beneath posterior half (or more) of lower eyelid white; lower abdomen and anal region pale yellowish or yellowish white; secondaries slate-gray, darker on inner webs (except of tertials), their outer

^a *Bombycivora japonica* Siebold, Hist. Nat. Jap., 1824, 13 (Tokyo, Japan); in Féruss. Bull. Sci. Nat., iv, 1825, 87.—*A[mpelis] japonica* Gray, Gen. Birds, i, 1846, 278.—*Ampelis japonicus* Sharpe, Cat. Birds Brit. Mus., x, 1885, 217.—*Bombycilla phanicoptera* Temminck, Pl. Col., ii, 1828, pl. 450.—*[Ampelis] phaenicoptera* Bonaparte, Consp. Av., i, 1850, 336. This very beautiful species is much more closely related to *A. garrulus* than to *A. cedrorum*. It is smaller than *A. garrulus*, but like that species has the forehead, part of the malar region, and the under tail-coverts cinnamon-rufous, and the throat black.

webs (except two innermost tertials) broadly tipped with white and the shaft of each prolonged into an expanded tear-shaped or linear flattened glossy appendage, resembling red sealing wax; primary coverts and primaries blackish slate or slate-black, narrowly edged with slate-gray, the first broadly tipped on both webs with white; primaries with terminal portion of outer web, for 5 mm. (more or less), yellow, or yellow and white, the inner web sometimes with a narrow terminal margin of yellow or white; tail slate-gray, becoming darker (slate-black or blackish slate) toward end, broadly tipped with chrome yellow; bill black terminally, bluish gray basally; iris brown; legs and feet black. (b) *Imperfect^a plumage*: Similar to the perfect plumage, as described above, but markings on terminal portion of outer webs of primaries entirely white, red wax-like appendages to secondaries absent, and terminal band of tail much paler yellow (straw yellow or pale naples yellow) and often much narrower.

Young female, first plumage.^b—Wings and tail as in the perfect (more brightly colored) adult plumage, but red appendages to secondaries smaller; upper parts otherwise much as in adults, but more olive-grayish, the middle of back faintly streaked with paler; pileum entirely olive-gray, the feathers of the forehead white basally; black of frontal antiae and lores duller and less sharply defined than in adults; malar region entirely dull white; chin and throat dull white, the former margined along each side by a dusky streak; chest, breast, sides, and flanks deep olive-gray, indistinctly streaked with whitish; middle of abdomen and anal region dull white; under tail-coverts vinaceous-cinnamon.

Adult male.—Length (skins), 170–190 (176.9); wing, 110–119 (114); tail, 59–70 (63.6); exposed culmen, 10.5–12 (11.6); tarsus, 20–21.5 (20.5); middle toe, 16–19 (17).^c

^aI am at a loss for a satisfactory name for this plumage or an explanation of its true meaning. It is obviously quite independent of sex; and that it has nothing to do with the age of the specimen, or at least is not evidence of immature age, is almost equally certain. The only very young specimen of the present species that I have seen has the remiges and rectrices colored exactly as in the brightly colored plumage described above, except that the wax-like appendages to the secondaries are smaller. As a rule, young birds of *A. cedrorum*, in the streaked plumage of the first summer, lack the red appendages to the secondaries, but sometimes they are present, and the tail-band is usually quite as bright yellow as in adults; therefore it would seem that these two styles of plumage occur both among fully adult and very young birds.

^bNo. 165808; coll. U. S. Nat. Mus. (Biological Survey collection), Yukon River, Northwest Territory, July 29, 1899; W. H. Osgood.

^cNineteen specimens.

Adult female.—Length (skins), 168–185 (174); wing, 110–121 (114.1); tail, 59–70 (63.2); exposed culmen, 10–12 (11); tarsus, 19–21.5 (20.8); middle toe, 15–19 (17).^a

Circumpolar. Northern parts of Northern Hemisphere, breeding in coniferous forests of the Boreal Life Zone; southward in winter, in North America (irregularly), to Connecticut, Pennsylvania, Ohio, Indiana, Illinois, Kansas, Colorado, northern California, etc., casually to Arizona (Fort Mojave); breeding from Keewatin (Fort Churchill) and Athabasca (Theitaga Lake) to Alaska.

[*Lanius*] *garrulus* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 95.—SCOPOLI, Bemerk., ed. Günther, 1770, 18.

[*Ampelis*] *garrulus* LINNÆUS, Syst. Nat., ed. 12, i, 1766, 297.—GIMELIN, Syst. Nat., i, 1788, 838.—LATHAM, Index Orn., i, 1790, 363.—COUES, Key N. Am. Birds, 1872, 115.

[*Ampelis*] *garrulus* GRAY, Gen. Birds, i, 1846, 278; List Brit. Birds, 1863, 80.—NELSON, Bull. Essex Inst., viii, 1876, 103 (n. e. Illinois; irregular winter visitor).—COUES, Key N. Am. Birds, 2d ed., 1884, 326.—RIDGWAY, Man. N. Am. Birds, 1887, 464.

[*Ampelis*] *garrulus* BONAPARTE, Consp. Av., i, 1850, 336.—GRAY, Hand-list i, 1869, 365, no. 5565.

Ampelis garrulus SCHLEGEL, Vog. Nederl., 1854, pl. 121.—SUNDEVALL, Svensk. Fogl., 1858, pl. 18, fig. 4.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 317, 923; Cat. N. Am. Birds, 1859, no. 232.—NEWTON, Ibis, 1861, 92–106, pl. 4 (nest and eggs; descr. nesting, etc.); ed. Yarrell's Hist. Brit. Birds, i, 1874, 523.—COOPER, Proc. Cal. Acad. Sci., ii, 1861, 122 (Fort Mojave, 1 spec., Jan. 10, California); Orn. Cal., 1870, 127.—ALLEN, Proc. Essex Inst., iv, 1864, 66 (Springfield, Massachusetts; accidental).—MCILWRAITH, Proc. Essex Inst., v, 1866, 87 (Hamilton, Ontario).—LAWRENCE, Ann. Lyc. N. Y., ii, 1866,

^a Eighteen specimens.

Specimens from different geographic areas average, respectively, in measurements as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Two adult males from Illinois and Minnesota	110.5	63	11	20.2	17
Ten adult males from northwestern United States	114.5	65.5	12	20.8	17.2
Six adult males from northeastern Asia	114.4	61	11.8	20.1	16.7
Two adult males from Norway	114	62	10.5	20	16
FEMALES.					
Four adult females from Nebraska and Minnesota	114	62.4	11	20.2	17.2
Ten adult females from northwestern United States	114.6	64.6	11.1	20.9	17.2
Three adult females from northeastern Asia	113.3	60.6	10.5	20	16.6
One adult female from Germany	112	59	11.5	20	16

I am not able to detect any constant difference in coloration between specimens from North America and those from Europe and northeastern Asia, though the former appear to have the color of the flanks appreciably darker, at least as a rule. A considerably larger series, especially of Palearctic specimens, would be necessary for satisfactory comparison.

- 285 (near New York City; accidental).—DEGLAND and GERBE, Orn. Eur., 4, 1867, 577.—GOULD, Birds Gt. Brit., ii, 1869, pl. 21.—DALL and BANNISTER, Trans. Chicago Acad. Sci., i, 1869, 289 (breeding on Yukon R., Alaska).—HARTING, Handb. Brit. Birds, 1872, 23.—AIKEN, Proc. Bost. Soc. N. H., xv, 1872, 198 (Colorado).—WHEATON, Rep. Ohio Agric. Soc. for 1874 (1875), 565 (n. Ohio).—COUES, Check List, 1873, no. 118; 2d ed., 1882, no. 166; Birds N. W., 1874, 91; Birds Col. Val., 1878, 459.—DRESSER, Birds Europe, iii, 1873, 429, pl. 155.—BENDIRE, Proc. Bost. Soc. N. H., 1877, 115 (Camp Harney, e. Oregon, in winter; remarks on plumage).—HATCH, Bull. Minn. Acad., 1874, 57 (Minnesota, Nov.—Feb.).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 396, pl. 18, fig. 1.—SNOW, Birds Kansas, 3d ed., 1875, 5 (Fort Riley, Hammond, and Ottawa, Kansas).—DAVID and OUSTALET, Ois. Chine, 1877, 130.—MERRIAM, Trans. Conn. Acad. Sci., iv, 1877, 32 (Connecticut; casual in winter).—MEARNS, Bull. Nutt. Orn. Club, iii, 1878, 46 (near West Point, New York, Jan.).—RIDGWAY, Bull. Nutt. Orn. Club, v, 1880, 118 (Villa Ridge, Pulaski Co., s. Illinois, 1 spec., Dec. 18, 1879); Nom. N. Am. Birds 1881, no. 150; Orn. Illinois, i, 1889, 199.—STEVENSON, Trans. Norf. and Norw. Nat. Soc., iii, 1882, 326–344 (important essay on variations of plumage in a series of 144 specimens).—DREW, Bull. Nutt. Orn. Club, vi, 1881, 89 (San Juan Co., Colorado, Nov.).—BLAKISTON and PRYER, Birds Japan, 1882, 149.—GIGLIOLI, Icon. Avif. Ital., 1882, pl. 78.—BRITISH ORNITHOLOGISTS' UNION, List Brit. Birds, 1883, 39.—SEEBOHM, Hist. Brit. Birds, ii, 1884, 3, pl. 11 (eggs).—SHARPE, Cat. Birds Brit. Mus., x, 1885, 212.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 618.—STEJNEGER, Proc. U. S. Nat. Mus., 1887, 143 (Bering I., rare).—COOKE, Bird Migr. Miss. Val., 1888, 231 (Mississippi Valley localities and dates).—EVERMANN, Auk, vi, 1889, 26 (Carroll Co., Indiana, once in winter).—GOSW., Hist. Birds Kansas, 1891, 510 (rare winter visitant).—MACFARLANE, Proc. U. S. Nat. Mus., xiv., 1891, 443 (Fort Anderson).—NEHELING, Our Native Birds, etc., i, 1893, 322.—BUTLER, Proc. Indiana Ac. Sci., 1896, 245 (near Indianapolis, in spring, "about 40 years ago"); Auk, xiv, 1897, 199 (do.; 19 specs.); Birds Indiana, 1897, 1000 (n. Indiana; irregular winter visitant).—DAWSON, Auk, xiv, 1897, 179 (Okanogan Co., e. Washington, winter).—MCGREGOR, Condor, i, 1900, 34 (Quincy, Plumas Co., California, 6 specs., Feb., 1892).—PERRIOR, Auk, xvii, 1900, 68 (Syracuse, New York, about 50, Feb. 10, 1899).—BISHOP, N. Am. Fauna, no. 19, 1900, 88 (Six Mile R., Lake Marsh, Fifty Mile R., Miles Canyon, etc., Alaska, July, Aug.; habits; notes).—PREBLE, N. Am. Fauna, no. 22, 1902, 124 (Fort Churchill, Keewatin, July 25: Theitaga Lake, Athabasca, breeding).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 388.
- Turdus garrulus* SCHAEFFER, Mus. Orn., 1789, 20.
- Ampelis garrula* SCLATER, Cat. Am. Birds, 1862, 46 (Racine, Wisconsin).—SWINHOE, Proc. Zool. Soc. Lond., 1863, 298 (China); 1871, 374 (n. China); Ibis, 1873, 362 (Shanghai, China); 1874, 158 (Hakodate, Japan).—BAIRD, Review Am. Birds, 1865, 405.
- Bombycivora garrula* TEMMINCK, Man. d'Orn., i, 1815, 124; iii, 1835, 71.—NAUMANN, Vög. Deutschl., ii, 1822, 143.—WERNER, Atlas, Insectivores, 1827, pl. 13.—GOULD, Birds Europe, iii, 1837, pl. 160.
- Bombycilla garrula* VIEILLLOT, Nouv. Dict. d'Hist. Nat., xvi, 1817, 523, pl. 10, fig. 3.—NAUMANN, Vög. Deutschl., ii, 1822, pl. 59.—BONAPARTE, Am. Orn., iii, 1828, 7, pl. 16, fig. 2; Geog. and Comp. List, 1838, 9.—LESSON, Traité d'Orn., 1831, 367.—SWAINSON and RICHARDSON, Fauna Bor.-Am., ii, 1831, 237.—NUTTALL, Man. Orn. U. S. and Can., ii, 1834, 579.—AUDUBON, Orn. Biog., v, 1838, 402, pl. 363 (Philadelphia, Pennsylvania; Long Island; Massachu-

- setts, etc.); Synopsis, 1839, 165; Birds Am., oct. ed., iv, 1842, 165, pl. 245.—MACGILLIVRAY, Man. Brit. Orn., i, 1840, 183.—KEYSERLING and BLASIUS, Wirb. Eur., 1840, 167.—YARRELL, Hist. Brit. Birds, i, 1843, 356.—MIDDENDORFF, Sibir. Reis., 1851, 156.—HOY, Proc. Acad. Nat. Sci. Philad., 1853, 381 (Racine, Wisconsin).—WOLLEY, Proc. Zool. Soc. Lond., 1857, 55, pl. 122 (nest and eggs; Lapland).—MAXIMILIAN, Journ. für Orn., 1858, 189 (upper Missouri R.).—HINTZ, Journ. für Orn., 1861, 229 (migrations).—HOMEYER, Journ. für Orn., 1869, 124 (e. Siberia).—FRITSCH, Vög. Eur., 1870, pl. 27, figs. 4, 5.—TACZANOWSKI, Journ. für Orn., 1872, 442 (Siberia); Proc. Zool. Soc. Lond., 1888, 459 (Corea, Feb.).
- Bombycilla garrulus* KAUP, Thierr., ii, pt. i, 1836, 173.—NORDMANN, Journ. für Orn., 1858, 307 (Lapland; breeding habits).
- B[ombycilla] garrula* CABANIS, Mus. Hein., i, 1850, 55 (Germany).
- Parus bombycilla* PALLAS, Zoogr. Rosso-Asiat., i, 1826, 548 (based on *Lanius garrulus* Linnæus).
- Bombyciphora poliocoelia* MEYER, Vög. Liv.-u. Esthl., 1815, 104 (Europe); Ann. Wetter. Gesellsch.; iv, heft i, 1819, 90, in text.
- Bombycilla bohémica* LEACH, Syst. Cat. Mam., etc., Brit. Mus., 1816, 18 (*nomen nudum*; ex *Garrulus bohemicus* Gesner, De Avibus, ed. 1617, 636, etc.).—FORSTER, Synopt. Cat. Brit. Birds, 1817, 6.—STEPHENS, Shaw's Gen. Zool., x, 1817, 421, pl. 34.—BREHM, Vög. Deutschl., 1831, 219.
- Bombycilla brachyrhynchus* BREHM, Naumannia, 1855, 275.
- Bombycilla cærulea* (typographical error) DUBOIS, Rev. et. Mag. de Zool., xii, 1860, pl. 2.
- Ampelis hientericus* MEYER, Ann. Wetter. Gesellsch. für Naturk., i, heft i, 1809, 270 (proposed for *A. garrulus*).

AMPELIS CEDRORUM (Vieillot).

CEDAR WAXWING.

Adults (sexes alike).—(a) *Perfect plumage:* Frontal antiæ (connected narrowly across base of forehead), lores, and wedge-shaped postocular patch (connected with loreal area above eye) velvety black; chin dull black; rest of head, together with neck and chest, soft pinkish wood brown or brownish fawn color, darker on throat, where shading into the black or dusky of chin, slightly duller or grayer on hindneck; anterior portion of malar region and a narrow line (sometimes obsolete) separating the brown of forehead from the black of lores and frontal antiæ white; back and scapulars similar in color to hindneck but slightly grayer (varying from broccoli brown to nearly hair brown), the wing-coverts still grayer; secondaries, primary coverts, and alula slate-gray, the first with terminal appendages (flattened and expanded prolongations of the shaft) of scarlet, resembling red sealing wax; primaries darker (slate color), edged with paler gray; rump, upper tail-coverts and basal portion of tail paler gray than secondaries, deepening toward end of tail into blackish slate or slate-black, the tail tipped with a sharply defined band of lemon or chrome yellow; vinaceous-brown color of chest passing posteriorly into a slightly paler and duller hue on breast and anterior portion of sides, and this into light yellowish olive or dull olive-yellowish on flanks and posterior portion of sides; the abdomen similar but paler

(sometimes nearly white); bill black, becoming bluish gray (sometimes brownish in dried skins) on basal portion of mandible, at least in winter; iris brown; legs and feet black. (b) *Imperfect plumage*.^a Similar to the perfect plumage, as described above, but without red wax-like appendages to secondaries, and yellow band across tip of tail narrower and paler yellow.

Young (first plumage).—Wings and tail as in the adult plumages described, the secondaries usually without the red appendages; rest of upper parts olive-drab (sometimes grayer, sometimes browner), the upper back usually indistinctly streaked with whitish, the rump and upper tail-coverts (especially the latter) more or less distinctly paler than back; black of frontal antæ and lores duller and less sharply defined than in adults, not continued behind eye, where replaced by a whitish patch or streak; throat varying from brownish white to wood brown; chin sometimes dusky, this sometimes continued laterally along each side of upper throat; chest, breast, and sides varying from hair brown to almost wood brown or isabella color, more or less distinctly streaked with dull whitish or buffy, the flanks whitish, yellowish, or buffy, broadly streaked with grayish brown; abdomen, anal region, and under tail-coverts white or buffy yellowish.

Adult male.—Length (skins), 141–167 (155.1); wing, 91–98 (93.8); tail, 52.5–61 (56.2); exposed culmen, 9–11 (10); tarsus, 16–17.5 (16.9); middle toe, 13–15.5 (14.2).^b

Adult female.—Length (skins), 140–157 (148); wing, 91–99 (92.6); tail, 51–60 (53.9); exposed culmen, 9–10.5 (9.5); tarsus, 16–18 (16.9); middle toe, 13–15 (14.3).^c

^a See footnote under *A. garrulus* on page 106. The same observations apply equally to the present species.

^b Twenty specimens.

^c Seventeen specimens.

Western specimens compare with eastern in average measurements as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Ten adult males from eastern United States	94.6	58.3	9.8	.....	16.7	14.1
Ten adult males from western United States	93.8	56.2	10	.....	16.9	14.2
FEMALES.						
Ten adult females from eastern United States	94.3	56.9	9.9	.....	16.8	14.1
Seven adult females from western United States	92.6	53.9	9.5	.....	16.9	14.3

I am unable to detect any color differences between eastern and western specimens.

In rare instances the primaries or even the retrices have more or less well-developed red terminal appendages, and occasional specimens have a small white mark at the tip of outer web of primaries. In midsummer specimens the coloration becomes much paler, through fading or abrasion of the plumage.

Temperate North America in general; breeding from Virginia,^a western North Carolina, Kentucky, Kansas, New Mexico and Arizona (in mountains), and Oregon,^b northward to Prince Edward Island, southern shores of Hudson Bay (Moose Factory), Manitoba, Saskatchewan (Grand Rapids, Chemawawin), and British Columbia; wintering in whole of United States (in wooded districts), and migrating southward to Bahamas, Cuba, Little Cayman, and Jamaica, in West Indies, and through Mexico and Central America to highlands of Costa Rica (Volcan de Irazú, 6,000 feet altitude); accidental in Bermudas and British Islands.

[*Lanius garrulus*] β LINNÆUS, Syst. Nat., ed. 10, i, 1758, 95 (based on *The Chatterer* Catesby, Nat. Hist. Carolina, i, 46, pl. 46).

[*Ampelis garrulus*] β LINNÆUS, Syst. Nat., ed. 12, i, 1766, 297.—GMELIN, Syst. Nat., i, 1788, 838.—LATHAM, Index Orn., i, 1790, 363.

[*Ampelis garrulus*] 2 TURTON, Syst. Nat., i, 1806, 511.

Bombycilla cedrorum VIEILLIOT, Ois. Am. Sept., i, 1807, 88, pl. 57; Enc. Méth., ii, 1823, 766; Gal. Ois., i, 1834, 186, pl. 118.—LESSON, Traité d'Orn., 1831, 367.—GUNDLACH, Journ. für Orn., 1856, 3 (Cuba); 1859, 350 (do.); 1861, 328 (do.).

B[ombycilla] cedrorum CABANIS, Mus. Hein., i, 1850, 55.

A[mpelis] cedrorum GRAY, Gen. Birds, i, 1846, 278.—COUES, Key N. Am. Birds, 2d ed., 1884, 327.—RIDGWAY, Man. N. Am. Birds, 1887, 465.

Ampelis cedrorum SCLATER, Proc. Zool. Soc. Lond., 1856, 299 (Cordova, Vera Cruz, Mexico); 1858, 302 (La Parada, Oaxaca); 1859, 364 (Jalapa, Vera Cruz); 1864, 173 (Valley of Mexico); Cat. Am. Birds, 1862, 46.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 318; Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 11 (Tamaulipas, Nuevo Leon); Cat. N. Am. Birds, 1859, no. 233; Review Am. Birds, 1866, 407.—SCLATER and SALVIN, Ibis, 1859, 13 (Guatemala).—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 187 (Washington and Oregon).—TAYLOR, Ibis, 1860, 111 (Siquatepeque, Honduras).—MARCH, Proc. Ac. Nat. Sci. Philad., 1863, 294 (Jamaica).—BLAKISTON, Ibis, 1863, 65 (Saskatchewan).—GRAY, List Brit. Birds, 1863, 81.—LORD, Proc. Roy. Art. Inst. Woolw., iv, 1864, 116 (British Columbia).—GUNDLACH, Repert. Fisico-Nat. Cuba, i, 1865, 240; Journ. für Orn., 1872, 430 (Cuba).—BROWN, Ibis, 1868, 421 (Vancouver I.).—SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 548 (Vera Cruz winter).—COOPER, Orn. Cal., 1870, 129.—COUES, Check List, 1873, no. 119; 2d ed., 1882, no. 167; Birds N. W., 1874, 93, 233; Birds Col. Val., 1878, 470.—AIKEN, Proc. Bost. Soc. N. H., xv, 1872, 198 (Colorado).—ALLEN, Proc. Bost. Soc. N. H., xvii, 1874, 54 (Yellowstone R.).—HENSHAW, Rep. Orn. Spec., Wheeler's Survey, 1874, 43 (Utah), 106 (Arizona); Zool. Exp. W. 100th Merid., 1875, 229 (s. of Camp Apache, Arizona).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 401, pl. 18, fig. 2.—NEWTON, ed. Yarrell's Hist. Brit. Birds, i, 1874, 53, footnote.—LAWRENCE, Bull. U. S. Nat. Mus., no. 4, 1876, 18 (Tehuantepec).—RIDGWAY, Orn. 40th Parallel, 1877, 446 (upper Humboldt Valley, Nevada, Sept.); Nom. N. Am. Birds, 1881, no. 151; Orn. Illinois, i, 1889, 200.—BREWSTER, Bull. Nutt. Orn. Club, iii, 1878, 64 (descr. young); Bull. Mus. Comp. Zool., xli, 1902, 171 (San José del Rancho, Comondu, and Vallederes, Lower California, Dec., Apr., May 1).—MEARNS, Bull. Nutt. Orn. Club, iii, 1878, 70 (crit. remarks on

^a W. E. D. Scott (Auk, ix, 1892, 213) records it as breeding on the Caloosahatchee River, southwestern Florida, but this is doubtless an error.

^b Not known to breed within the limits of California, according to Grinnell (Pacific Coast Avifauna, no. 3, 1902, 61).

- plumage with special reference to alleged sexual differences).—SCOTT, (W. E. D.), Bull. Nutt. Orn. Club, iv, 1879, 93 (Fairplay, Colorado, breeding); Auk, v, 1888, 31 (Tucson, Arizona, May, June); ix, 1892, 213 (Caloosahatchee R., Florida, breeding).—LOOMIS, Bull. Nutt. Orn. Club, iv, 1879, 213 (Chester Co., South Carolina, winter and up to May 9).—MERRIAM, Bull. Nutt. Orn. Club, vi, 1881, 229 (Adirondacks, n. e. New York, breeding).—BELDING, Proc. U. S. Nat. Mus., v, 1883, 537 (La Paz, Lower California, winter).—BRITISH ORNITHOLOGISTS' UNION, List Brit. Birds, 1883, 40.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 215.—CORY, Auk, iii, 1886, 192; vi, 1889, 31 (Little Cayman); viii, 1895, 294 (New Providence, Bahamas); 295 (Berry Islands, Bahamas); Birds W. I., 1889, 79; Cat. W. I. Birds, 1892, 115 (Berry Islands and New Providence, Bahamas; Cuba; Jamaica).—TURNER, Proc. U. S. Nat. Mus., viii, 1885, 239 (Moose Factory, Aug. 26).—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 138 (Rancho de Posado, Puebla, Mexico).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 619.—BRYANT (W. E.), Bull. Cal. Ac. Sci., ii, 1887, 305 (Guadalupe I., 1 spec., Jan.).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1890, 612 (Manitoba, summer resid.; habits).—CHERRIE, Auk, viii, 1891, 395 (Volcan de Irazú, Costa Rica, 6,000 ft. alt., Apr. 11).—ANTHONY, Zoc, iv, 1893, 243 (Valladeres, Lower California, May 4).—NEHRLING, Our Native Birds, etc., i, 1893, 323, pl. 5, fig. 1.—DWIGHT, Auk, x, 1893, 12 (Prince Edward I., breeding).—MERRILL, Auk, xv, 1898, 17 (Fort Sherman, Idaho, breeding).—GRINNELL, Pub. no. ii, Pasadena Ac. Sci., 1898, 42 (Los Angeles Co., California, winter).—KOBBE, Auk, xvii, 1900, 356 (Cape Disappointment, Washington, breeding).—GRINNELL, Condor, iii, 1901, 146, 147 (status in California).—RATHBUN (S. F.), Auk, xix, 1902, 138 (Seattle, Washington, resident).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 388, fig. 480. [*Ampelis cedrorum* GRAY, Hand-list, i, 1869, 365, no. 5566.—COUES, Key N. Am. Birds, 1872, 116.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 13. *Bombyciphora cedrorum* BREHM, Vög. Deutschl., 1831, 220. *Ampelis americana* WILSON, Am. Orn., i, 1808, 107, pl. 7, fig. 1.—BONAPARTE, Journ. Ac. Nat. Sci. Philad., iv, 1824, 37. *Bombycilla americana* LICHTENSTEIN, Preis.-Verz. Mex. Vög., 1830, 1; Journ. für Orn., 1863, 56.—SWAINSON and RICHARDSON, Fauna Bor.-Am., ii, 1831, 239.—JARDINE, Contr. Orn., 1848, 83 (Bermudas, Oct.-Dec.).—HARTLAUB, Naumannia, ii, 1852, 52 (Cuba; "Guayaquil").—JONES, Nat. in Bermuda, 1859, 29 (Bermudas). *Bombyciphora xanthocephala* MEYER, Vög. Liv-und Esthlands, 1815, 105, in text (North America); Ann. Wetterau. Gesellsch. für Naturk., iv, heft i, 1819, 90, in text. *Ampelis pinetorum* MEYER, Vög. Liv-und Esthlands, 1815, 105, in text (erroneous citation of *A. cedrorum* Vieillot). *Bombycilla carolinensis* STEPHENS, Shaw's Gen. Zool., x, 1817, 422 (ex Brisson, Orn., ii, 337).—BONAPARTE, Journ. Ac. Nat. Sci. Philad., iv, 1824, 37; Ann. Lyc. N. Y., ii, 1826, 59; Geog. and Comp. List, 1838, 9.—AUDUBON, Orn. Biog., i, 1831, 227, pl. 43; Synopsis, 1839, 165; Birds Am., oct. ed., iv, 1842, 169, pl. 246.—NUTTALL, Man. Orn. U. S. and Can., i, 1832, 248.—THOMPSON, Nat. Hist. Vermont, 1853, 74.—NEWTON, Zoologist, ix, 1851, 3277 (Cambridgeshire, England, accidental).—BRYANT, Proc. Bost. Soc. N. H., vi, 1857, 118 (Nova Scotia). *Ampelis carolinensis* GOSSE, Birds Jamaica, 1847, 197.—ALBRECHT, Journ. für Orn., 1862, 202 (Jamaica). [*Ampelis*] *carolinensis* BONAPARTE, Conspect. Av., i, 1850, 336. (?) *Bombycilla mariae* COINDE, Esp. Nouv. d'Oiseau jaseur *Bombycilla*, 1857; Rev. Zool., 1860, 396, in text (Mexico).

^a An octavo pamphlet of 7 pages published in Grenoble, France. (Not seen.)

Family PTILOGONATIDÆ.

THE SILKY FLYCATCHERS.

Aboreal ten-primaried acutiplantar Oscines, with small, broad, and deeply cleft bill; short, usually distinctly scutellate, tarsi; rather short, rounded wings; long, fan-shaped tail, and silky blended plumage; the young with under parts neither streaked nor spotted.

Bill short, broad, depressed, and deeply cleft, much as in Ampelidæ, but mandibular rami of normal width; width of gape much less than length of exposed culmen; gonys but slightly convex and at least half as long as mandibular rami. Nostril exposed, roundish or ovate, bordered above and behind (sometimes all round) by membrane, the nasal fossæ almost wholly unfeathered. Rictal bristles well developed. Wing rather short, much rounded, the outermost (tenth) primary well developed, much longer than primary coverts, but not more (usually less) than half as long as ninth; ninth primary shorter than third, sometimes shorter than first. Tail longer than distance from bend of wing to tip of longest secondaries, usually equal to or longer than entire wing, rounded, emarginated, slightly forked, or graduated. Tarsus usually shorter than middle toe with claw (longer only in *Phainoptila*), with acrotarsium distinctly scutellate (except in adults of *Phainoptila*), the lower fourth or more of the planta tarsi also distinctly scutellate (except in *Phainoptila*); outer toe slightly longer than the inner, its claw falling a little short of base of middle claw; hallux decidedly shorter than inner toe, its claw decidedly shorter than the digit, strongly curved; basal phalanx of middle toe united to that of outer toe for most of its length, to the inner for about half its length.

Coloration.—Plain-colored, the plumage never with spots, bars, streaks, or other markings, even in young; never entirely unicolorous; plumage soft, blended; pileum usually crested.

Nidification.—In *Phainopepla*^a similar to that of *Ampelis*.

Range.—Southwestern United States to Costa Rica. (Three genera and four species.)

The genus *Phainoptila* is doubtfully a member of this group, and so far as the adult is concerned might easily be referred to the Turdidæ without materially affecting the diagnosis of the latter family; but the young have the plumage absolutely plain-colored and the acrotarsium distinctly scutellate.

The silky flycatchers are a small group of ten-primaried Oscines with short, broad bills, short scutellate tarsi, rather short, rounded wings, long, fan-shaped tail, and silky plumage of plain but often handsome colors. They are related to the Waxwings (family Ampelidæ), and

^a Nothing is known as to nesting of the other genera.

have usually been placed with them; but they differ in their rounded wings, with well-developed tenth and shortened ninth primaries, their well-developed rictal bristles, and different character of the frontal feathers. Their habits, however, are said to be very similar.

The family is peculiar to Central America and Mexico, one species extending into the southwestern United States. Only three genera, with four species, are known.

KEY TO THE GENERA OF PTILOGONATIDÆ.

- a. Crested; tarsus shorter than middle toe with claw, the acrotarsium distinctly scutellate, as well as lower fourth or more of the planta tarsi; outer toe slightly but decidedly longer than inner; wing little, if any, longer than tail (usually much shorter).
 - b. Wing decidedly shorter than tail; three outermost primaries narrow and pointed; bill broad, its width at base much more than length of gonys; nostril bordered by membrane only superiorly and posteriorly; feathers of crest broad and blended; plumage partly yellow, the rectrices with a large white patch on inner web. *Ptilogonys* (p. 114)
 - bb. Wing and tail about equal in length; three outermost primaries of normal shape (their tip broad and rounded); bill narrow (width at base not more than length of gonys); nostril entirely surrounded by membrane; feathers of crest narrow and distinct; plumage without yellow, the rectrices without white *Phainopepla* (p. 120)
- aa. Not crested; tarsus longer than middle toe with claw, the acrotarsium "booted" or else very indistinctly scutellate for upper half or more,^a the planta tarsi undivided; outer toe not longer than inner; wing much longer than tail. *Phainoptila* (p. 123)

Genus PTILOGONYS Swainson.

Ptilogonys SWAINSON, Cat. Bullock's Mex. Mus., 1824, App., p. 4. (Type, *P. cinereus* Swainson.)

Ptilogonys (emendation) SWAINSON, Philos. Mag., new ser., i, May, 1827, 268.

Ptilogonatus (emendation) SWAINSON, Zool. Journ., iii, July, 1827, 164.

Sphenotelus BAIRD, Review Am. Birds, May, 1866, 412. (Type, *Ptilogonys caudatus* Cabanis.)

Ptilogonatidæ with tail much longer than wing, head with a bushy blended crest, plumage partly yellow, and inner webs of rectrices with a large patch of white.

Bill broad, depressed, its width at posterior extremity of nostrils decidedly greater than distance from nostril to tip of maxilla, and decidedly greater than its depth at same point; culmen strongly decurved terminally, the tip of maxilla distinctly uncinat; maxillary tomium straight, with distinct subterminal notch; gonys shorter than unfeathered portion of mandibular rami, distinctly convex. Nostril rather large, roundish or oval, wholly exposed, bordered above and behind, sometimes in front also, by membrane. Rictal bristles well developed. Wing decidedly shorter than tail; ninth primary equal

^a Except in young.

to or longer than first but shorter than second, the seventh, sixth, and fifth longest; three outermost primaries rather narrow, pointed, their inner webs slightly emarginate. Tail much longer than wing, even or slightly emarginate (*P. cinereus*) or graduated (*P. caudatus*). Tarsus shorter than middle toe with claw, the acrotarsium and lower fourth or more of planta tarsi distinctly scutellate; outer toe slightly but decidedly longer than the inner, its claw reaching nearly to base of middle claw; basal phalanx of middle toe united to that of outer toe by most of its length, to that of inner toe by about half its length. Plumage soft, blended; pileum with a bushy crest of broad, blended feathers; tibial feathers well developed, forming a conspicuous tuft quite covering the tibio-tarsal joint.

Coloration.—Mostly plain gray or brown, with under tail-coverts yellow, the flanks (sometimes neck and crest also) olive-green; remiges and rectrices black, the latter with a large white patch on inner web.

Nidification.—(Unknown.)^a

Range.—Highlands of Mexico, Guatemala, and Costa Rica. (Two species.)

KEY TO THE SPECIES OF PTILOGONYXS.

- a. Tail even or emarginate; crest wholly gray; orbital ring white. (*Ptilogonyx cinereus*.)
- b. Back, breast, etc., bluish gray; flanks yellowish olive-green or golden olive. (Adult males.)
- c. Gray of back, breast, etc., lighter; flanks bright golden olive or deep wax yellow. (Southern portion of Mexican plateau.)
- Ptilogonyx cinereus cinereus*, adult male (p. 115)**
- cc. Gray of back, breast, etc., darker; flanks (less extensively) olive-green. (Highlands of Guatemala.)
- Ptilogonyx cinereus molybdophanes*, adult male (p. 117)**
- bb. Back, breast, etc., grayish brown or brownish gray; flanks light wood brown or brownish buff. (Adult females.)
- c. Paler.....***Ptilogonyx cinereus cinereus*, adult female (p. 116)**
- cc. Darker.....***Ptilogonyx cinereus molybdophanes*, adult female (p. 118)**
- aa. Tail graduated; occipital portion of crest yellowish olive-green; orbital ring yellow.
- b. Back, breast, etc., bluish gray; tail excessively graduated. (Highlands of Costa Rica and Chiriqui.).....***Ptilogonyx caudatus*, adult male (p. 118)**
- bb. Back, breast, etc., olive-greenish; tail moderately graduated.
- Ptilogonyx caudatus*, adult female (p. 119)**

PTILOGONYXS CINEREUS CINEREUS Swainson.

MEXICAN PTILOGONYXS.

Adult male.—Frontal antiae, supraloral region, anterior portion of malar region, and chin dull white or brownish white; a dusky loreal spot, this extending narrowly beneath lower eyelid; a narrow white

^a The eggs are said to resemble those of *Anthus pratensis*. (See Sclater, Proc. Zool. Soc. Lond., 1859, 376.)

orbital ring; auricular region, occiput (beneath crest), and nape soft grayish brown (grayish sepia or purplish hair brown); rest of head, including crest, smoke gray; back, scapulars, wing-coverts, rump, and upper tail-coverts plain bluish slate-gray; remiges (except tertials), primary coverts, and alula black, narrowly edged with gray; tertials and rectrices glossy greenish or bluish black, the latter (except middle pair) with a large patch of white on inner web, about midway between base and tip, this largest (30–35 or more long) on outermost rectrix, gradually decreasing in extent toward middle rectrices; chest, whole breast, and anterior portion of sides plain bluish gray, lighter than color of back, fading gradually into paler gray on throat, this fading anteriorly into whitish of chin; abdomen and thighs white; flanks and posterior portion of sides bright golden olive or deep wax yellow; under tail-coverts rich lemon yellow; bill, legs, and feet black; iris red;^a length (skins), 189–213 (200.9); wing, 93–100 (95.6); tail, 91–110 (102.2); exposed culmen, 9–10 (9.8); tarsus, 17–19 (18); middle toe, 12–15 (13.3).^b

Adult female.—Head plain smoke gray (the pileum decidedly darker than throat), passing into white on frontal antiæ, malar apex, and chin; a white orbital ring; back, scapulars, wing-coverts, and rump plain grayish brown (hair brown to broccoli brown or drab), upper tail-coverts gray; remiges and rectrices black, with a faint greenish gloss, edged with gray; inner webs of rectrices (except middle pair) with a white patch, as in adult male; chest pale grayish brown, deepening into a more decided brown hue on sides and flanks, the latter clear wood brown (paler and more buffy in worn plumage); abdomen and thighs white; under tail-coverts clear lemon yellow; bill and feet as in adult male; length (skins), 181–201 (188.2); wing, 90–94 (91.7); tail, 90–96 (92.7); exposed culmen, 10; tarsus, 17–19 (17.9); middle toe, 12–14 (13.2).^c

^a "Iris carmine" (according to Xantus, on label of specimen from Sierra Madre de Colima).

^b Eleven specimens.

^c Twelve specimens.

Specimens from eastern and western portions of the Mexican plateau, respectively, compare in average measurements as follows. I am unable to detect any constant color difference.

Locality.	Wing.	Tail.	Exposed culmen.	Tarsus.	Middle toe.
MALES.					
Three adult males from Vera Cruz, Mexico, and Hidalgo.	95.7	99	10	18	12
Eight adult males from Zacatecas, Jalisco, Durango, and Colima	95.6	108.4	9.8	18	11
FEMALES.					
Six adult females from Vera Cruz, Hidalgo, and Morelos...	91.3	93.1	10	17.8	11
Six adult females from Zacatecas, Durango, and Jalisco...	91.8	92.1	10	18	11

Mountain districts of central and southern Mexico, in states of Durango (El Salto), Zacatecas (Valparaiso Mountains), Guanajuato, Hidalgo (Real del Monte; San Augustin), Mexico, Puebla (Teziutlan), Vera Cruz (Jalapa, Orizaba, Cordova), Oaxaca (La Parada, Totontepec), Colima (Sierra Madre), Jalisco (San Sebastian; Sierra Nevada), and Morelos (Tetela del Volcan).

Ptilogonys cinereus "SWAINSON, Catal. Bullock's Mex. Mus., 1824, App. page 4" (table lands of Mexico).—BONAPARTE, Comp. Av., i, 1850, 335.—SCLATER, Proc. Zool. Soc. Lond., 1856, 299 (Cordova, Vera Cruz); 1858, 302 (La Parada, Oaxaca); 1859, 364 (Jalapa, Vera Cruz), 376 (Totontepec, Oaxaca, descr. eggs); 1864, 173 (City of Mexico); Cat. Am. Birds, 1862, part (Mexico).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 319, footnote (Mexico); Review Am. Birds, 1866, 412, part (Sierra Madre de Colima; Orizaba and Cordova, Vera Cruz).—DUGÈS, La Nature, i, 1868, 141 (Guanajuato).—SUMICHAEST, Mem. Bost. Soc. N. H., i, 1869, 548 (alp. reg., Vera Cruz, 4,160–10,000 ft. and Valley of Orizaba).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 217, part (Mexican localities).—SHARPE, Cat. Birds Brit. Mus., x, 1885, 222, part (Mexico).—CHAPMAN, Bull. Am. Mus. N. H., x, 1898, 26 (Jalapa; habits).

P[tilogonys] cinereus CABANIS, Mus. Hein., i, 1850, 55 (Jalapa).

[*Ptilogonys*] *cinereus* GRAY, Hand-list, i, 1869, 366, no. 5568.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 13, part (Mexico).

Ptilogonys cinereus SWAINSON, Philos. Mag., n. s., i, May, 1827, 368; Zool. Illustr., ser. 2, ii, no. 14, 1831, pl. 62; iii, no. 23, 1832, pl. 102 (Real del Monte).—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 139 (Teziutlan, Puebla; Jalapa, Vera Cruz).

P[tilogonys] cinereus RIDGWAY, Man. N. Am. Birds, 1887, 464, footnote (descr.).

Ptilogonatus cinereus SWAINSON, Zool. Journ., iii, July, 1827, 164.

Ptilogonis cinereus LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 273 (Sierra Madre, Colima).

Hypothymis chrysorhoëa TEMMINCK, Pl. Col., iii, 1828, pl. 452 (Mexico).

Hypothymis mexicanus LICHTENSTEIN, Preis-Verz. Mex. Vög., 1831, 2; Journ. für Orn., 1863, 58 (reprint).

PTILOGONYS CINEREUS MOLYBDOPHANES Ridgway.

GUATEMALAN PTILOGONYS.

Similar to *P. c. cinereus*, but more richly colored, the adult male with flanks olive-green instead of golden olive or wax yellow, the area thus colored much more restricted.

Adult male.—Head soft smoke gray, becoming dull white on forehead, anterior portion of malar region, and chin, the auricular region, occiput (concealed by longer feathers of crest), and nape more brownish gray, but less distinctly brownish than in *P. c. cinereus*; a narrow white orbital ring; back, scapulars, wing-coverts, rump, and upper tail-coverts uniform deep bluish gray (decidedly darker than in *P. c. cinereus*), the chest, breast, upper abdomen, and anterior portion of sides similar but slightly paler; throat pale gray, the upper portion sometimes white, like chin; lower abdomen and thighs white; flanks olive-green (much

darker and of much less extended area than in *P. c. cinereus*); under tail-coverts rich lemon yellow; remiges (except tertials), primary coverts, and alula black with gray edges; tertials and rectrices glossy bluish or greenish black, the latter (except middle pair^a) with a large white patch on inner web, nearly midway between base and tip; bill, legs, and feet black; length (skins), 199–211 (204.8); wing, 92–97 (94.2); tail, 100–109 (104.4); exposed culmen, 9–10 (9.5); tarsus, 18; middle toe, 12–14 (13.1).^b

Adult female.—Similar to the adult female of *P. c. cinereus*, but colors darker throughout (except the yellow of under tail-coverts), the grayish brown of back slightly more olivaceous and abruptly contrasted with the gray of pileum and hindneck; ^c length (skins), 188–198, (193.6); wing, 85–94 (92); tail, 88–100 (96.4); exposed culmen, 10; tarsus, 17–19 (18); middle toe, 13.^d

Highlands of Guatemala (Coban ?; Dueñas; Volcan de Fuego; Volcan de Agua; Sumpango; ridge above Totonicapam; Barranca Honda; Quezaltenango).

Ptilogonys cinereus (not of Swainson) SCLATER and SALVIN, Ibis, 1859, 13 (Guatemala); 1860, 31 (Coban and Volcan de Fuego, Guatemala).—SCLATER, Cat. Am. Birds, 1862, 47, part (Guatemala).—BAIRD, Review Am. Birds, 1866, 412, part (Dueñas, Guatemala).—SALVIN, Cat. Strickland Coll., 1882, 147 (Guatemala).—BOCCARD, Liste Ois. Guat., 1878, 31 (Guatemala, 1,000–2,000 meters alt.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 217, part (Volcan de Fuego, Volcan de Agua, Dueñas, Sumpango, Barranca Hondo, and ridge above Totonicapam, Guatemala).—SHARPE, Cat. Birds Brit. Mus., x, 1885, 222, part (Volcan de Fuego, Guatemala).

[*Ptilogonys*] *cinereus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 13, part (Guatemala).

[*Ptilogonys*] *cinereus molybdophanes* RIDGWAY, Man. N. Am. Birds, 1887, 464, footnote (Guatemala; coll. U. S. Nat. Mus.).

Ptilogonys cinereus molybdophanes RIDGWAY, Man. N. Am. Birds, 1887, 592; 2d ed., 1896, 614.

PTILOGONYS CAUDATUS Cabanis.

OOSTA RICAN PTILOGONYS.

Adult male.—Forehead and crown pale gray (no. 7 or between nos. 7 and 8), becoming paler anteriorly; narrow orbital ring yellow; rest of head and neck, including crest, deep olive-yellow or light yellowish olive-green, the throat paler and slightly tinged with gray; back, scapulars, rump, upper tail-coverts, and wing-coverts uniform bluish slate-gray; the chest, breast, and upper abdomen similar but rather paler; sides and flanks yellowish olive-green; thighs and lower abdo-

^a Frequently the next to middle pair also lack any white spot.

^b Seven specimens.

^c In the female of *P. c. cinereus* the brown of the back usually becomes gradually grayer anteriorly, so that it grades almost insensibly into the gray of head and neck.

^d Five specimens.

men primrose yellow or white tinged with yellow; under tail-coverts clear lemon yellow; remiges, primary coverts, alula, and tail black, faintly glossed with bluish or greenish, the secondaries, primaries, and primary coverts more or less distinctly edged with gray; inner webs of rectrices (except two middle pairs ^a) with a large patch of white on middle portion; bill, legs, and feet black; length (skins), 237-244 (240.4); wing, 96-98 (96.6); tail, 127-139 (131.8); exposed culmen, 11; tarsus, 20-21 (20.2); middle toe, 13-15 (14.2).^b

Adult female.—Forehead and crown olive-gray, the former becoming paler anteriorly; rest of head, together with neck, back, scapulars, rump, and wing-coverts plain yellowish olive-green; the chest, breast, sides, and flanks similar but slightly paler; the sides and flanks more yellowish olive-green; lower abdomen and thighs yellowish white; under tail-coverts canary yellow; upper tail coverts gray or olive-gray, tinged with yellowish olive; remiges, primary coverts, alula, and rectrices black with grayish edges (more olive-greenish on secondaries); inner webs of three or four outer rectrices with a large space of white near middle portion; bill, legs, and feet as in adult male; length (skins), 200-210 (205); wing, 94; tail, 111; exposed culmen, 11; tarsus, 19-21 (20); middle toe, 13.^c

Young.—Above plain light grayish brown (nearly broccoli brown), the upper tail-coverts darker brown; remiges, rectrices, etc., as in adult female; under parts paler grayish brown anteriorly, gradually becoming paler and more yellowish posteriorly, the under tail-coverts pale yellow (primrose) with grayish base; bill and feet brownish.

Highlands of Costa Rica (Volcan de Irazú, Volcan de Cartago, San José, Rancho Redondo, Navarro, etc.), and Chiriqui (Volcan de Chiriqui).

Ptilogonys caudatus CABANIS, Journ. für Orn., Nov., 1860 (pub. May, 1861), 402 (Irazú, Costa Rica; coll. Berlin Mus.).—BAIRD, Review Am. Birds, 1866, 413 (San José and Rancho Redondo, Costa Rica).—SCLATER and SALVIN, Exotic Orn., pt. i, 1866, 11, pl. 6 (2 figs.).—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 97 (San José; Volcan de Irazú).—FRANTZIUS, Journ. für Orn., 1869, 295 (Irazú).—SALVIN, Proc. Zool. Soc. Lond., 1870, 185 (Volcan de Chiriqui, Chiriqui).—BOUCARD, Proc. Zool. Soc. Lond., 1878, 53 (oak forests Volcan de Irazú and Navarro).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 219.—SHARPE, Cat. Birds Brit. Mus., x, 1885, 224 (Volcan de Irazú and Volcan de Cartago).—ZELEDON, Anal. Mus. Nac. Costa Rica, i, 1887, 108 (Volcan de Irazú; La Palma de San José; Rancho Redondo de San José).—BANGS, Proc. New Engl. Zool. Club, iii, 1902, 58 (Volcan de Chiriqui, alt. 10,000-11,000 ft.; habits).

[*Ptilogonys*] *caudatus* GRAY, Hand-list, i, 1869, 366, no. 5569.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 13.

[*Sphenotelus*] *caudatus* BAIRD, Review Am. Birds, May, 1866, 412, in text.

P[tilogonys] caudatus RIDGWAY, Man. N. Am. Birds, 1887, 464, footnote.

^a Occasionally there is a small white spot on next to the middle pair.

^b Five specimens.

^c Two specimens.

Genus PHAINOPEPLA Sclater.

Phainopepla^a SCLATER, Proc. Zool. Soc. Lond., xxvi, 1858 (pub. Jan.-May, 1859^b), 543. (Type, *Ptilogonys nitens* Swainson.)

Phænopepla (emendation) COUES, Ibis, April, 1865, 163, in text.

Phaenopepla BAIRD, Review Am. Birds, May, 1866, 415.

Ptiligonatidæ with the tail about as long as wing, head with a pointed crest of narrow, individualized feathers, plumage without any yellow, and inner webs of rectrices without any white.

Bill narrow, compressed terminally (width at posterior end of nostrils decidedly less than distance from nostril to tip of maxilla, decidedly greater than its depth at same point); culmen gradually but decidedly decurved terminally, the tip of maxilla scarcely or at least not distinctly uncinatè; maxillary tomium faintly concave medially, faintly convex subbasally, distinctly notched subterminally; gonys about equal to unfeathered portion of mandibular rami, slightly but distinctly convex. Nostril small, wholly exposed, broadly oval or roundish, pierced through the lower central portion of the nasal membrane, which borders it narrowly beneath, more broadly elsewhere. Rictal bristles distinct. Ninth primary equal to or longer than first, the eighth, seventh, sixth and fifth (usually seventh and sixth) longest; three outermost primaries of normal form. Tail about as long as wing, slightly rounded, the rectrices broadening terminally, with tips subtruncate. Tarsus nearly as long as middle toe with claw, with acrotarsium and lower fourth or more of planta tarsi distinctly scutellate; outer toe decidedly longer than inner, its claw not reaching to base of middle claw; basal phalanx of middle toe united to outer toe by most of its length, to that of inner toe by about half of its length. Plumage soft and blended, the head with a pointed crest of narrow, distinctly outlined, feathers; tibial feathers normal (rather short, not completely covering tibio-tarsal joint).

Coloration.—Adult male entirely glossy blue-black, with inner webs of primaries extensively white; adult female and young plain brownish gray with whitish edgings to wing-feathers.

Nidification.—Nest saucer-shaped, compact, composed of plant fibers, etc., placed on trees. Eggs 2-5, pale grayish or dull grayish white, speckled with neutral tint, dark brown, and blackish.

Range.—Arid districts of southwestern United States and Mexico. (Monotypic.)

PHAINOPEPLA NITENS (Swainson.).

PHAINOPEPLA.

Adult male.—Uniform glossy greenish blue-black; larger wing-coverts, remiges, and rectrices less glossy black, edged with glossy dark

^a "Φαεινός, nitidus, et πέπλος, vestis."

^b The name first published by Baird, Rep. Pacific R. R. Surv., ix, 1858, p. xxxiv.

greenish blue or steel gray; inner webs of primaries except innermost (first) with middle portion extensively white, this sometimes obsolete on outermost (tenth) and second; bill, legs, and feet black; iris red (carmine); length (skins), 167–196 (184.4); wing, 90–99 (94.6); tail, 91–105 (96.1); exposed culmen, 10–12 (10.8); tarsus, 16–19.5 (17.6); middle toe, 12–15 (13.8).^a

Adult female.—Plain olivaceous mouse gray, the longer feathers of crest black edged with gray; wings and tail dusky (the latter nearly black), faintly glossed with bronzy greenish; lesser wing-coverts margined with gray; middle coverts broadly margined terminally with white, the greater coverts and tertials edged (more or less broadly) with the same, the primaries more narrowly edged with white or pale gray; rectrices edged with deeper gray, becoming white on outermost rectrices; under tail-coverts broadly margined with white; inner webs of primaries pale brownish gray basally, but without any definite light-colored area; bill and feet brownish black or dusky brown; iris brown ?; length (skins), 168–190 (180); wing, 86–96 (90.5); tail, 83–96 (89.7); exposed culmen, 11–12 (11.5); tarsus, 17–19 (18.2); middle toe, 12–15 (13.3).^b

Young (both sexes).—Similar in coloration to the adult female but slightly browner gray; greater wing-coverts and secondaries edged with brownish white or pale buffy gray instead of pure white, the middle and greater coverts tipped with the same; under tail-coverts with pale margins much less distinct; longer feathers of crest entirely dusky or with indistinct pale edging; texture of plumage very different—much more lax.

Immature males are variously intermediate in color between adults

^aTwenty-three specimens.

^bFifteen specimens.

Specimens from the southern portion of the Mexican plateau are the largest, those from California the smallest, average measurements according to locality being as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Four adult males from Mexican plateau.....	97.9	99.7	10.6	18.2	14.1
Four adult males from western Texas	96.9	97.4	10.5	18.7	14
Seven adult males from Arizona	95	96.4	11	17	14
Eight adult males from California	92.1	93.3	11	17.1	13.3
FEMALES.					
Three adult females from Mexican plateau.....	94	92.6	11	18	14
Six adult females from Arizona	89.6	89.1	11	18	13
Six adult females from California	89.5	88.6	11	18.3	13.3

No color difference, according to locality, is observable in the very extensive series examined.

and young. Younger females in adult dress have the abdomen suffused with whitish.

Southwestern United States (arid division of Lower Sonoran Life Zone), north, regularly, to southwestern Texas, New Mexico, southern Utah (lower Santa Clara Valley), southern Nevada and southern California (San Bernardino, San Diego, Los Angeles, Ventura, Santa Barbara, San Joaquin, and Calaveras counties), casually or irregularly to west-central Nevada (Carson Desert), and to central and northern California (Santa Clara, San José, Yuba, Shasta, and Siskiyou counties); southward throughout peninsula of Lower California and over Mexican plateau to States of Mexico (Valley of Mexico), Puebla (Rancho del Aguacate, Huehuetlan), and Vera Cruz (plateau district).

Ptilogonys nitens SWAINSON, Anim. in Menag., 1838, 285 (Mexico).—LAFRESNAYE, Rev. Zool., viii, 1845, 451, 452.—BONAPARTE, Consp. Av., i, 1850, 335.—HEERMANN, Journ. Ac. Nat. Sci. Philad., ii, 1853, 263 (s. California; habits); Rep. Pacific R. R. Surv., x, pt. iv, no. 2, 1859, 38 (Cosumnes R. and Colorado R., California).—CASSIN, Illustr. Birds Cal., Tex., etc., i, 1854, 169, pl. 29.—HENRY, Proc. Ac. Nat. Sci. Philad., 1855, 308 (New Mexico).—KENNERLY, Pacific R. R. Rep., iv, pt. vi, 1856, 11, 12 (Bill Williams R., Arizona).

P[tilogonys] nitens GRAY, Gen. Birds, i, 1846, 281.

[Ptilogonys] nitens GRAY, Hand-list, i, 1869, 366, no. 5570.

Cichlopsis nitens BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 320, 923.

Phainopepla nitens BAIRD, Rep. Pacific R. R. Surv., ix, 1858, p. xxxiv.—SCLATER, Proc. Zool. Soc. Lond., 1858 (pub. May-June, 1859), 543; 1864, 173 (City of Mexico); Cat. Am. Birds, 1862, 47 (n. Mexico).—BAIRD, Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 11 (Fort Yuma; Gila R., etc.); Cat. N. Am. Birds, 1859, no. 234; Proc. Ac. Nat. Sci. Philad., 1859, 303 (Cape St. Lucas); Ives' Rep. Colorado R., 1861, pt. v, 5.—KENNERLY, Rep. Pacific R. R. Surv., x, pt. vi, no. 3, 1859, 25 (Bill Williams Fork and Gila R., Arizona).—XANTUS, Proc. Ac. Nat. Sci. Philad., 1859, 191 (Fort Tejon, California).—HENRY, Proc. Ac. Nat. Sci. Philad., 1859, 106 (New Mexico).—DRESSER, Ibis, 1865, 480 (Eagle Pass, Texas).—DUGES, La Nature, i, 1868, 141 (Guanajuato).—COOPER, Am. Nat., iii, 1869, 34, 185 (Cajon Pass, California); Orn. Cal., i, 1870, 131.—YARROW, Rep. Orn. Spec. Wheeler's Surv., 1874, 34 (s. Nevada).—BELDING, Proc. U. S. Nat. Mus., i, 1879, 398 (Calaveras Co., California, summer res.); v, 1883, 534 (La Paz, etc., Lower California).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 26.—COUES, Check List, 2d ed., 1882, no. 168.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 220.—SCOTT (W. E. D.), Auk, ii, 1885, 242 (Pinal and Pima counties, Arizona; breeding habits; descr. nest and eggs); v, 1888, 31 (Gila and Pima counties, Arizona, up to 5,000 ft.).—EVERMANN, Auk, iii, 1886, 183 (Ventura Co., California; habits; descr. nest and eggs).—SHARPE, Cat. Birds Brit. Mus., x, 1885, 220.—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 139 (Rancho del Aguacate and Huehuetlan, Puebla).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 620.—TOWNSEND, Proc. U. S. Nat. Mus., x, 1887, 222 (Baird, Shasta Co., California, 1 spec., June).—FISHER (A. K.), N. Am. Fauna, no. 7, 1893, 113 (lower Santa Clara Valley, Utah; localities in s. e. California).—MERRIAM (F. A.), Auk, xiii, 1896, 38 (nesting habits; song).—GRINNELL, Pub. ii, Pasadena Ac. Sci., 1898, 43 (Los Angeles Co., California, summer res.).—BARLOW, Condor, ii, 1900, 133 (Berryessa, Santa

- Clara Co., California, 1 spec., Nov., 1899; San José, San José Co., 1 spec., Oct. 28, 1898).—MAILLIARD, Condor, iii, 1901, 125 (Paicines, San Benito Co., California, winter res.).—BREWSTER, Bull. Mus. Comp. Zool., xli, 1902, 171 (San José del Rancho, La Paz, etc., Lower California, resident).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 390, fig. 481.
- [*Phainopepla*] *nitens* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 13.
- P[hainopepla]* *nitens* COUES, Key N. Am. Birds, 2d ed., 1884, 328.
- P[hainopepla]* *nitens* RIDGWAY, Man. N. Am. Birds, 1887, 465.
- Phænopepla nitens* COUES, Ibis, April, 1865, 163, in text (Arizona); Proc. Ac. Nat. Sci. Philad., 1866, 71 (Fort Whipple, Arizona); 1868, 83 (Arizona); Check List, 1873, no. 120; Birds N. W., 1874, 95 (song); Birds Col. Val., 1878, 475.—BAIRD, Review Am. Birds, 1866, 416 (Fort Crook, Fort Tejon, and Colorado Desert, California, etc.).—SUMICHRIST, Mem. Bost. Soc. N. H., i, 1869, 548 (plateau dists. Vera Cruz, down to 7,000 ft.).—COOPER, Am. Nat., viii, 1874, 17 (Cuyamaca Mts. California).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 405, 507, pl. 18, figs. 3, 4.—YARROW and HENSHAW, Rep. Orn. Spec. Wheeler's Surv. for 1871 (1874), 34.—HENSHAW, Rep. Orn. Spec. Wheeler's Surv. for 1873 (1874), 106 (Apache and Mount Turnbull, Arizona); Zool. Exped. W. 100th Merid., 1875, 229 (Nevada; Camps Apache, Bowie, Lowell, and Mount Turnbull, Arizona).—(?) RIDGWAY, Orn. 40th Parallel, 1877, 447 (Soda Lakes, Carson Desert, Nevada; 1 spec., June, 1868); Bull. Nutt. Orn. Club, iii, 1878, 65 (Calaveras Co., California, May).
- [*Phænopepla*] *nitens* COUES, Key N. Am. Birds, 1872, 116.
- Lepturus galeatus* LESSON, Rev. Zool., 1849, 4.
- Myiadestes townsendi* (error) BREWER, Proc. Bost. Soc. N. H., xvi, 1874, 109 (descr. nest and eggs).

Genus PHAINOPTILA Salvin.

Phainoptila^a SALVIN, Proc. Zool. Soc. Lond., Apr. 17, 1877, 367. (Type, *P. melanozantha* Salvin.)

Ptilogonatidæ without crest, with tarsus longer than middle toe and claw, booted or very indistinctly scutellate,^b and with the tail much shorter than wing.

Bill about half as long as head, rather compressed, strongly carinate; width at frontal antiæ decidedly less than distance from nostril to tip of maxilla, very little if at all greater than its depth at same point; culmen strongly ridged, straight basally, gradually decurved terminally, the tip of maxilla distinctly but not abruptly uncinatè; maxillary tomium nearly straight, distinctly notched subterminally; gonys about equal to unfeathered portion of mandibular rami, slightly but decidedly convex. Nostril large, wholly exposed, broadly ovate, narrowly margined above, more broadly behind, by membrane, and with a distinct exposed inner tubercle. Rictal bristles distinct. Ninth primary shorter than first, the seventh, sixth, and fifth longest; three outermost primaries normal in form. Tail decidedly shorter than wing (about equal to distance from bend of wing to tip of longest secondaries), slightly rounded, the rectrices rather broad, of normal form,

^a "φαεινός, splendens, et πρίλον, pluma."

^b Except in young.

but with tip subacuminate. Tarsus longer than middle toe and claw, the acrotarsium very indistinctly scutellate (sometimes "booted") except on lower portion, the planta tarsi undivided; lateral toes about equal in length, their claws not reaching to base of middle claw; basal phalanx of middle toe united to that of outer toe by most of its length, to that of inner toe by about half its length. Plumage normal, the pileum without crest, but with feathers distinctly outlined, not blended.

Coloration.—Adult male with head, neck, chest, and upper parts black, rump, breast, and under tail-coverts olive-green (the first sometimes nearly yellow), flanks yellow, and abdomen gray; adult females and young with black replaced by olive or olive-greenish, except on pileum.

Nidification.—(Unknown.)

Range.—Highlands of Costa Rica and Chiriqui. (Monotypic.)

PHAINOPTILA MELANOXANTHA Salvin.

SALVIN'S PTILOGONYX.

Adult male.—Pileum, hindneck, back, scapulars, and upper tail-coverts deep black, with a slight bluish green gloss; sides of head and neck, chin, throat, upper chest, thighs, wings, and tail dull black or sooty black; rump lemon yellow, more or less tinged with olive, anteriorly, yellowish olive-green posteriorly; lower breast and abdomen gray (no. 6) or slate-gray; sides and flanks clear lemon yellow; lower chest, upper breast, and under tail-coverts yellowish olive-green, this extending along the inner edge of the yellow patch on sides and flanks, separating the latter from the gray of the abdomen; bill black or brownish black; iris brown; legs and feet deep or dark brown; length (skins), 205–219 (210.7); wing, 97–105 (101); tail, 85–92 (88.2); exposed culmen, 14–15 (14.2); tarsus, 27–29 (28.1); middle toe, 17–19 (18).^a

Adult female.—Pileum deep black, glossed with bluish green; hindneck slate color; rest of upper parts plain olive-green, brighter (sometimes intermixed with yellow) on rump; sides of head olive-gray, the chin and throat paler and more olivaceous; thighs olive-gray; rest of under parts, bill, and feet as in adult male; length (skins), 209; wing, 94–201 (97.5); tail, 84–89 (86.5); exposed culmen, 14; tarsus, 26–27 (26.5); middle toe, 16.^b

Young (sex unknown).—Similar to the adult female, but colors duller and texture of plumage much looser.

Highlands of Costa Rica (San Francisco, Navarro, Rancho Redondo, La Palma de San José, Volcan de Irazú, Volcan de Poás, etc.) and Chiriqui (Boquete and Volcan de Chiriqui, 4,000–11,000 feet altitude).

Phainoptila melanozantha SALVIN, Proc. Zool. Soc. Lond., Apr. 17, 1877, 367 (San Francisco, Costa Rica; coll. Salvin and Godman).—ROWLEY, Orn. Misc., ii,

^a Four specimens.

^b Two specimens.

pt. x, Oct., 1877, 439-442, pl. 79.—BOUCARD, Proc. Zool. Soc. Lond., 1878, 53 (Navarro and Rancho Redondo, Costa Rica, alt. 4,000 ft.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 221, pl. 14.—SHARPE, Cat. Birds Brit. Mus., x, 1885, 219 (Irazú distr., Costa Rica).—ZELEDON, Anal. Mus. Nac. Costa Rica, i, 1887, 108 (La Palma de San José and Rancho Redondo de San José, Costa Rica).—ALFARO, Gaceta Of., no. 288, 1888 (Volcan de Poás, Costa Rica).—BANGS, Proc. New Engl. Zool. Club, iii, 1902, 58 (Boquete and Volcan de Chiriqui, Chiriqui, 4,000-11,000 ft.).

Family DULIDÆ.

THE PALM CHATS.

Rather small arboreal ten-primaried acutiplantar Oscines with the bill deep and compressed, the culmen strongly curved; nostrils wholly exposed, circular, in anterior end of distinct nasal fossæ; tail decidedly shorter than wing, even; outermost (tenth) primary much less than half as long as the next (ninth); under parts conspicuously streaked; plumage rather hard and harsh, very different from the silky blended character of that of the Ampelidæ and Ptilogonatidæ.

The Palm Chats are a small group, consisting of only two known species, one of them peculiar to Haiti, the other of unknown habitat but presumably some part of the West Indies. They are allied to the Silky Flycatchers (family Ptilogonatidæ), from which they differ, however, in much stronger beak and feet (the latter with strongly curved claws), shorter tail, and harsher, firmer plumage, with the under parts conspicuously streaked.

They are said to frequent chiefly the cocoanut palms and to feed both on fruits and insects.

Genus DULUS Vieillot.

Dulus VIEILLOT, Analyse, 1816, 42. (Type, "*Tanagra esclave*" Buffon, = *Tanagra dominica* Linnæus.) (See Strickland, Jardine's Contr. Orn., 1851, 103, 104.)

Bill decidedly shorter than head (exposed culmen not longer than inner toe), relatively deep and compressed, its depth at nostrils equal to more than half the length of exposed culmen; culmen decidedly curved from the base, but tip of maxilla not distinct, its subterminal tomial notch obvious but minute; maxillary tomium faintly concave, the basal portion straight or very faintly convex; gonys nearly equal to distance from nostril to tip of maxilla, straight and ascending terminally but rather prominent and slightly convex basally. Nostril roundish or transversely ovate, entirely exposed, in anterior end of nasal fossæ, separated behind from feathering of frontal antiæ by naked membrane. Rictal bristles obvious but minute. Wing rather long, rounded; eighth, seventh, and sixth primaries longest, the fifth shorter than eighth; ninth shorter than fourth; tenth between one-third and one-half as long as ninth; wing-tip about equal in length to

tarsus. Tail shorter than distance from bend of wing to tips of secondaries, even or very slightly rounded, the rectrices rather narrow, with broadly rounded tip, their shafts hard and stiff. Tarsus longer than middle toe without claw but shorter than middle toe with claw, about one-fourth as long as wing, stout, the acrotarsium very distinctly scutellate; outer toe reaching to middle of subterminal phalanx of middle toe, its claw reaching beyond base of middle claw; inner toe decidedly shorter, its claw falling short of base of middle claw; hallux equal in length to inner toe, but much stouter, its claw much shorter than the digit, but well developed and strongly curved; basal phalanx of middle toe united to outer toe by greater part of its length, to inner toe by about half its length.

Coloration.—Above plain olive; beneath pale yellowish or whitish, conspicuously streaked with dusky; plumage harsh, very different from the silky blended character of that in Ampelidæ and Ptilogonattidæ.

Nidification.—Nest enormously bulky, composed externally of sticks and twigs (its internal structure unknown), placed in crown of tall palm trees. Eggs unknown.

Range.—Island of Haiti, Greater Antilles. (Monotypic?; possibly two species.)

KEY TO THE SPECIES OF DULUS.

a. No white on upper parts; larger (wing 83-87). (Haiti.) . *Dulus dominicus* (p. 126)

aa. No white patch on hindneck; smaller (wing 81). (Habitat unknown.)

Dulus nuchalis (p. 127)

DULUS DOMINICUS (Linnaeus).

PALM CHAT.

Adults (sexes alike).—Above olive, the back, scapulars, and wing-coverts decidedly more brownish, the lower rump and upper tail-coverts olive-greenish; feathers of pileum and hindneck showing very indistinct mesial streaks of darker; secondaries (except tertials) and primaries edged with light yellowish olive-green; tail brownish gray, the rectrices edged with light olive-greenish, and with brown shafts; lores, suborbital region, and auricular region uniform dark brown or dusky; malar region dusky, streaked with yellowish white; under parts yellowish white, broadly and sharply streaked with sooty brown, the streaks narrower on abdomen, broader and paler brown on under tail-coverts; under wing-coverts pale buff or buffy whitish, with very narrow and indistinct shaft-lines of brown; bill light brown, the mandible paler; iris brown; legs and feet dusky in dried skins.

Adult male.—Length (skin), 160; wing, 83; tail, 65; exposed culmen, 12; tarsus (broken); middle toe, 18.^a

Adult female.—Length (skin), 161; wing, 87; tail, 68; exposed culmen, 12; tarsus, 21; middle toe, 18.^a

^a One specimen.

Island of Haiti, Greater Antilles.

- [*Tanagra*] *dominica* LINNÆUS, Syst. Nat., ed. 12, i, 1766, 316 (based on *Tangara*, de St. Domingue, *Tanagra dominicensis* Brisson, Orn., iii, 37, pl. 2, fig. 4; Daubenton, Pl. Enl., pl. 156, fig. 2).—GMELIN, Syst. Nat., i, pt. ii, 1788, 895.
- Dulus dominicus* STRICKLAND, Jardine's Contr. Orn., 1851, 103.—LAFRESNAYE, Rev. Zool., 1851, 583 (habits, affinities, etc.).—SCLATER, Cat. Am. Birds, 1862, 41 (Santo Domingo).—BAIRD, Review Am. Birds, 1866, 403 (Jeremie and Port au Prince, Haiti; Santo Domingo).—BRYANT, Proc. Bost. Soc. N. H., xi, 1866, 92 (Santo Domingo).—CORY, Bull. Nutt. Orn. Club, vi, 1881, 152 (Haiti); Birds Haiti and San Dom., 1885, 51, pl. 21, fig. 4; Auk, iii, 1886, 191; Birds W. I., 1889, 78; Cat. W. I. Birds, 1892, 17, 115, 131.—SHARPE, Cat. Birds Brit. Mus., x, 1885, 218.—CHERRIE, Contr. Orn. San Dom., 1896, 13 (descr. nest).
- [*Dulus*] *dominicus* GRAY, Hand-list, i, 1869, 385, no. 5827.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 13.—CORY, List Birds W. I., 1885, 11.
- Dulus palmarum* VIEILLOR, Nouv. Dict. d'Hist. Nat., x, 1817, 435.—BONAPARTE, Consp. Av., i, 1850, 331. part.—LAFRESNAYE, Rev. Zool., 2^e ser. iii, Dec., 1851, 585 (habits, affinities, etc.).
- A[rrremon] palmarum* GRAY, Gen. Birds, iii, 1849, App., p. 16.
- Tanagra mancipium* HERMANN, Tab. Aff. Anim., 1783, 211 (based on *l'esclave* Buffon).

DULUS NUCHALIS Swainson.

WHITE-NEPED PALM CHAT.

Similar to *D. dominicus*, but smaller and with a white band across hindneck.

"Above olive brown; nape with a transverse bar of white; beneath cream color, with distinct stripes of dark brown.

"Inhabits Brazil. Mus. Nostr.

"Total length 7 inches [178 mm.]; bill, gape $1\frac{1}{8}$ [16.5]; front $1\frac{1}{8}$ [10.5]; wings $33\frac{1}{8}$ [i. e., $3\frac{1}{8} \times 78.5$]; tail, beyond [wings], $1\frac{1}{8}$ [45.5]; [to] base, 3 [76]; tarsus $1\frac{1}{8}$ [19].^a Edges of quills and tail feathers olive green; ears and lores blackish; tail very slightly forked; the two middle tail feathers cinereous; bill pale." (Original description.)

Habitat unknown, but probably island of Haiti, Greater Antilles.

Dulus nuchalis SWAINSON, Anim. in Menag., 1838, 345 ("Brazil;" coll. W. Swainson^b); Classif. Birds, ii, 1837, 238.—STRICKLAND, Jardine's Contr. Orn., 1851, 104.—BAIRD, Review Am. Birds, 1866, 403, in text.—SHARPE, Cat. Birds Brit. Mus., x, 1885, 219.—CORY, Auk, iii, 1886, 191; Birds W. I., 1889, 78; Cat. W. I. Birds, 1892, 17, 123.

[*Dulus*] *nuchalis* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 13.—CORY, List Birds W. I., 1885, 11.

^aSharpe (Cat. Birds Brit. Mus., x, 219) gives measurements of the type specimen, in the museum of Cambridge, as follows: Total length 7.2 inches [183 mm.], culmen 0.55 [14], wing 3.2 [81], tail 2.95 [75], tarsus 0.75 [19.5].

^bType said by Strickland (Jardine's Contr. Orn., 1851, 104) to be in the Museum of Cambridge, England.

Family VIREONIDÆ.

THE VIREOS.

Small^a dentirostral acutiplantar Oscines with the tarsus longer than middle toe and claw, the acrotarsium distinctly scutellaté; hallux (without claw) as long as or longer than inner toe (without claw), the latter decidedly shorter than outer toe; basal phalanx of middle toe completely adherent to both outer and inner toe; tenth primary very short (little if any more than half as long as eighth), sometimes rudimentary and concealed (the wing then being typically "nine-primaried"); the wing always longer than the tail, and the plumage never streaked, barred nor spotted, even in young.

Bill very variable as to relative size but never longer than head (usually very much shorter, often less than half as long); also very variable as to relative length, depth, and breadth; culmen strongly curved terminally, sometimes nearly straight for basal half or more, the tip of maxilla more or less distinctly uncinatè; maxillary tomium nearly straight, distinctly notched subterminally; mandibular tomium also sometimes with a subterminal notch, the tip of the mandible produced into an acute ascending point; gonys decidedly longer than unfeathered portion of mandibular rami (nearly or sometimes quite equal to length of maxilla from nostril), more or less strongly convex. Nostril at least partly exposed, longitudinally oval or ovate (sometimes roundish) in lower anterior portion of nasal fossæ, overhung by a distinct membranous operculum. Rictal bristles inconspicuous, only two on each side well developed; the feathers of the frontal antiæ, however, with well-developed, sometimes conspicuous, bristle-like tips, these sometimes reaching beyond and partially covering nostrils. Wing variable but always longer than tail, and always with the tenth (often also the ninth) primary much reduced in length: tenth primary never much more than half as long as ninth, usually much less, sometimes rudimentary and concealed; ninth primary never longer than seventh. Tail shorter (usually much shorter) than wing even, slightly rounded, double-rounded, or emarginate, the rectrices rather narrow. Tarsus longer than middle toe with claw, the acrotarsium distinctly scutellate but planta tarsi undivided; lateral toes unequal, the outer decidedly longer than the inner; hallux (without claw) equal to or longer than inner toe (without claw); basal phalanx of anterior toes abbreviated, that of the middle toe shorter than that of the inner or the two basal phalanges of the outer toe, and adherent to both lateral toes for its entire length.

Coloration.—Very variable, but never streaked, spotted, nor barred: plain olive, whitish, buffy or yellowish hues prevailing, sometimes

^aThe wing not more than 75 mm., usually much less.

with bright green and yellow, rarely with blue on head; usually plain olive, olive-green, or gray above (sometimes relieved by whitish or yellowish wing-bars), and plain whitish or yellowish beneath.

Nidification.—Nest (so far as known) suspended from a forked branch, composed of fine vegetable fibers, mosses, lichens, etc.; eggs white, usually more or less spotted.

Range.—Temperate and tropical America, except Galapagos Archipelago.

The Vireos (sometimes called Greenlets) are active arboreal birds, mainly insectivorous though feeding also on fruits and berries. As a rule they are fair songsters, although some species are distinguished for the oddity rather than melody of their notes. So far as known they all build pensile nests, and lay white eggs with a few dark specks.

The family is peculiar to America, but chiefly tropical, and is represented by about seventy known species, referable to eight genera.

KEY TO THE GENERA OF VIREONIDÆ.

- a. Lateral toes relatively shorter, the inner toe (without claw) shorter than the hallux (without claw), its claw not reaching beyond base of middle claw.
- b. Bill more slender, relatively less deep and compressed, its depth at frontal antiæ not greater than its width at same point; sides of maxilla without grooves.
- c. Tail slightly rounded, even, or emarginate; throat and chest not slate-gray.
- d. Tenth primary rudimentary and concealed or else very small and narrow, less than one-third as long as ninth; the latter longer than fourth; wing-tip longer than commissure, or else the latter longer than tarsus.
- e. Bill relatively longer and more slender, its depth at frontal antiæ not greater (usually much less) than half the distance from nostril to tip of maxilla, the latter measurement at least equal to length of gonys; if the tenth primary obvious the ninth shorter than fifth; wing without whitish bars or other markings.....*Vireosylva* (p. 130)
- ee. Bill relatively shorter and stouter, its depth at frontal antiæ equal to much more than half the distance from nostril to tip of maxilla, the latter measurement decidedly less than length of gonys; if the tenth primary obvious the ninth longer than sixth; wing with two conspicuous white bars.....*Lanirovireo* (p. 161)
- dd. Tenth primary well developed, more than one-third (frequently one-half) as long as ninth, the latter shorter than fourth (sometimes shorter than first or, rarely, shorter even than secondaries); wing-tip shorter than commissure, the latter shorter than tarsus.....*Vireo* (p. 176)
- cc. Tail much rounded; throat and chest slate-gray.....*Neochloë* (p. 211)
- bb. Bill stouter, relatively deeper and more compressed, its depth at frontal antiæ decidedly greater than its width at same point; sides of maxilla with fine longitudinal grooves.....*Lalotes* (p. 212)
- aa. Lateral toes relatively longer, the inner toe (without claw) as long as or longer than hallux (without claw), its claw reaching decidedly beyond base of middle claw.
- b. Bill smaller and more slender, the culmen slightly decurved terminally; smaller (wing less than 65 mm.).....*Pachysylvia* (p. 214)

^aThis feature may not be constant, only one specimen having been examined.

bb. Bill larger and stouter, the culmen strongly decurved terminally; larger (wing more than 70 mm.).

c. Bill relatively longer, broader, and less compressed, its depth at frontal antia but little greater than its width at same point; color bright green above, with blue on crown, or else a yellow superciliary stripe.

Vireolanius (p. 221)

cc. Bill relatively shorter, deeper, and more compressed, its depth at frontal antia much greater than its width at same point; color neither bright green above, nor with blue on crown, nor with a yellow superciliary stripe, the latter more or less rufescent.....*Cycularhis* (p. 226)

I am unable to avoid recognizing *Vireosylva* and *Lanivireo* as genera without suppressing *Neochloe* and *Laletes*; in fact, these two are structurally much nearer typical *Vireo* than are those first mentioned, which seem to me to be very well characterized groups.

Genus VIREOSYLVA Bonaparte.

Vireosylva BONAPARTE, Geog. and Comp. List, 1838, 26. (Type, *Muscicapa olivacea* Linnæus.)

Vireosylva (emendation) BONAPARTE, Consp. Av., i, 1850, 329.

Phyllomanes CABANIS, Wiegmann's Archiv. für Naturg., 1847, i, 321. (Substitute for *Vireosylva* on grounds of purism.)

Small or medium-sized Vireonidæ with the tenth primary rudimentary and concealed or else not more than one-third as long as the ninth, narrow and pointed; ninth primary longer than fourth; depth of bill at frontal antia not greater (usually much less) than half the distance from nostril to tip of maxilla, the latter measurement at least equal to length of gonys; wing without whitish bars or other markings.

Bill very variable in relative size, sometimes as long as head, sometimes less than half as long; culmen usually straight, or nearly so, to near tip, where rather abruptly decurved, the tip of maxilla distinctly uncinat. Wing rather long and pointed; tenth primary usually rudimentary and wholly concealed; if present not more than one-third as long as ninth, narrow and pointed; ninth primary equal to or longer than fifth (sometimes longer than sixth) or else, in those species having the tenth primary evident, longer than fourth; eighth and seventh, or eighth, seventh, and sixth primaries longest; wing-tip equal to or longer than tarsus. Tail much shorter than wing (the difference at least equal to length of tarsus), even, or very slightly emarginate or double-rounded. Tarsus one-fourth as long as wing or less, much longer than middle toe with claw, always longer (sometimes nearly twice as long) as exposed culmen.

Coloration.—Above plain olive, olive-green or grayish, the pileum usually grayer or browner (sometimes distinctly brown), the wings without white bands or other markings; under parts whitish or yellowish.

Range.—Whole of tropical and temperate America except Galapagos Archipelago. (Numerous species.)

α "φυλλομαῖνής, Laub liebend."

KEY TO THE SPECIES AND SUBSPECIES OF VIREOSYLVA.

- a. Back olive, olive-green, or olive-gray. (Adults.)
- b. Tenth primary obsolete.^a
- c. Exposed culmen 11.5 or more, longer than middle toe without claw; under parts white or pale grayish medially.
- d. Pileum grayish brown, or brownish gray, concolor with back.
- e. Under parts grayish olive or olive-grayish laterally, becoming dull grayish or olivaceous white medially; upper parts darker, especially the pileum. (*Vireosylva magister*.)
- f. Coloration more decidedly, or more brownish, olive; slightly larger, especially the bill (exposed culmen averaging 16.5 in adult male). (Coast of Honduras and British Honduras.)
Vireosylva magister magister (p. 134)
- ff. Coloration grayer; slightly smaller, especially the bill (exposed culmen averaging 15.7 in adult male). (Coast of Yucatan, including islands of Cozumel and Mugeris.)*Vireosylva magister cinerea* (p. 136)
- ee. Under parts dull white, the sides and flanks tinged with yellowish olive; upper parts paler, especially the pileum. (Island of Grand Cayman, near Cuba.)*Vireosylva caymanensis* (p. 136)
- dd. Pileum gray, in more or less marked contrast with olive-green of back, etc.
- e. A dusky submalar streak. (*Vireosylva calidris*.)
- f. Smaller, especially the bill (exposed culmen not more than 18, usually much less, wing averaging less than 83).
- g. Pileum dull brownish gray or grayish brown, without distinct, if any, lateral line of dusky; superciliary stripe and cheeks dull grayish buff or pale isabella color. (Islands of Jamaica, Haiti, Porto Rico, St. Thomas and St. Croix, Greater Antilles; Sombrero and Saba, Lesser Antilles; Trinidad.)*Vireosylva calidris calidris* (p. 137)
- gg. Pileum purer or clearer gray, with a more or less distinct lateral line of dusky; superciliary stripe and cheeks pale gray or grayish white.
- h. Dusky lateral line of pileum more distinct; superciliary stripe pale gray, becoming grayish white anteriorly; bill larger (exposed culmen of adult male 15.5-17, averaging 16.2). (Islands of St. Eustatius, Antigua, Montserrat, Guadeloupe, Dominica, Martinique, Santa Lucia, St. Vincent, Grenada, and Barbados, Lesser Antilles.)*Vireosylva calidris barbadensis* (p. 140)
- hh. Dusky lateral line of pileum less distinct, sometimes obsolete; superciliary stripe pale brownish gray; bill smaller (exposed culmen of adult male 14-15.5, averaging 14.9). (Bahamas, Cuba and southern Florida.)
Vireosylva calidris barbatula (p. 141)
- ff. Larger, especially the bill (exposed culmen 18 or more, wing 84-87).
- g. Olive-green above; sides and flanks yellowish olive; under tail-coverts pale yellow. (Island of Old Providence, Caribbean Sea.)
Vireosylva calidris grandior (p. 143)
- gg. Grayish olive above; sides, flanks, and under tail-coverts whitish, like rest of under parts. (Island of St. Andrews, Caribbean Sea.)
Vireosylva calidris canescens (p. 143)
- ee. No dusky submalar streak (the throat entirely white, or grayish white.)
- f. Sides and flanks olive-yellow, or strongly washed with that color; axillars, under wing-coverts, and under tail-coverts sulphur yellow.

^a Said to be sometimes visible in *V. olivacea*, but I have never seen such a specimen.

- g. Sides and flanks more extensively and uniformly olive-yellow; under tail-coverts deeper sulphur yellow; no distinct, if any, dusky postocular streak.
- h. Superciliary stripe brownish gray, indistinct; pileum without distinct, if any, dusky lateral line. (*Vireosylva flavoviridis*.)
- i. Smaller (adult male averaging wing 78.1, tail 51.6, tarsus 18.4); superciliary stripe more distinct and dusky lateral line of pileum usually obvious. (Northern Mexico to Isthmus of Panama.)
Vireosylva flavoviridis flavoviridis (p. 144)
- ii. Larger (adult male averaging wing 83, tail 59.2, tarsus 20.1); superciliary stripe less distinct and dusky lateral line of pileum usually obsolete. (Tres Marias Islands, western Mexico.)
Vireosylva flavoviridis forreri (p. 146)
- hh. Superciliary stripe grayish white, distinct; pileum with a very distinct lateral line of dusky. (San Miguel Island, Gulf of Panama.) *Vireosylva insularis* (p. 147)
- gg. Sides and flanks less extensively and uniformly olive-yellow; under tail-coverts paler sulphur yellow; a distinct dusky postocular streak. (*Vireosylva chiri*.)
- h. Larger (adult male averaging wing 76, tail 52.9, exposed culmen 14, tarsus 176; adult female, wing 68.3, tail 47.4, exposed culmen 13.3, tarsus 17); back, etc., much brighter olive-green, pileum much purer gray, sides and flanks much more strongly washed with olive-yellow, and under tail-coverts deeper sulphur or primrose yellow. (Northern South America, south to Bahia and central Brazil.) *Vireosylva chiri agilis* (extralimital)^a
- hh. Smaller (adult male with wing 63, tail 45.5, exposed culmen 12, tarsus 18; adult female, wing 62, tail 44, exposed culmen 11.5, tarsus 16); back, etc., much duller olive-green; gray of pileum duller; sides and flanks less strongly washed with olive-yellow, and under tail-coverts paler yellowish. (Paraguay, Argentina, and southern Brazil.) . . . *Vireosylva chiri chiri* (extralimital)^b

^a *L[anius] agilis* Lichtenstein, Verz. Doubl., 1823, no. 536 (Bahia, e. Brazil; coll. Berlin Mus.).—*Phyllomanes agilis* Burmeister, Syst. Ueb. Th. Bras., Aves, ii, 1856, 108 (part, at least).—*Vireosylva agilis* Sclater, Proc. Zool. Soc. Lond., 1860, 64 (Pallatanga, w. Ecuador), 273 (Babahoyo, w. Ecuador); Cat. Am. Birds, 1862, 44 (Bogota, Colombia; Pará, lower Amazon; Pallatanga).—Baird, Review Am. Birds, 1866, 338 (Buenos Aires; Ecuador; Guatemala?; Brazil; Trinidad).—Pelzeln, Orn. Bras., 1868, 73.—*V[ireosylva] flavoviridis* var. *agilis* Baird, Brewer, and Ridgway, Hist. N. Am. Birds, i, 1874, 359.—*Vireo bartramii* (not of Audubon) Swainson, Fauna Bor.-Am., ii, 1831, 235.—*Vireosylva virescens* (not *Vireosylva virescens* Vieillot) Cassin, Proc. Ac. Nat. Sci. Phila., 1851, 151 (Trinidad); Sclater, Proc. Zool. Soc. Lond., 1855, 151 (Bogota).—*Vireo* (*Vireosylva*) *virescens* Baird, Rep. Pacific R. R. Surv., ix, 1858, p. "xxxv" (= xxxv).—*Vireo virescens* (not of Vieillot) Baird, Rep. Pacific R. R. Surv., ix, 1858, 333, excl. syn. part (Brazil).—*Vireo chiri* (not *Sylvia chiri* Vieillot) Gadow, Cat. Birds Brit. Mus., viii, 1883, 295, excl. syn. part.

^b *Sylvia chiri* Vieillot, Nouv. Dict. d'Hist. Nat., xi, 1817, 174 (Paraguay; based on *Contramaestre Gaviro* Azara, Apunt., ii, 34); Enc. Méth., 1823, 437.—*Vireosylva chiri* Baird, Review Am. Birds, May, 1866, 337 (Vermejo R., Paraguay; s. e. Brazil; Bahia?); Sclater and Salvin, Proc. Zool. Soc. Lond., 1869, 160 (Buenos Aires).—*V[ireosylva] olivacea* var. *chiri* Baird, Brewer, and Ridgway, Hist. N. Am. Birds, i, 1874, 359.—*Vireo chiri* Gadow, Cat. Birds Brit. Mus., viii, 1883, 295, part (in synonymy).—(?) *Thamnophilus agilis* (not *Lanius agilis* Lichtenstein?) Spix, Av. Bras., ii, 1824, 25, pl. 34.

Both this form and its northern representative, *V. c. agilis*, require careful study.

ff. Sides and flanks very faintly tinged with yellowish olive; axillars, under wing-coverts, and under tail-coverts very pale sulphur yellow or nearly white. (Eastern North America, across continent in middle portion; south in winter to northern South America.)

Vireosylva olivacea (p. 147)

cc. Exposed culmen not more than 10; decidedly shorter than middle toe without claw; under parts olive-yellowish. (Eastern North America, south in winter to Chiriqui.).....*Vireosylva philadelphia* (p. 151)

bb. Tenth primary obvious, longer than primary coverts.

c. Under parts of body dull whitish, the sides and flanks more olivaceous.

d. Pileum gray, back grayish olive. (*Vireosylva gilva*.)

e. Paler above. (Eastern United States.)....*Vireosylva gilva gilva* (p. 153)

ee. Darker above, especially the pileum.

f. Smaller (adult male averaging wing 67.8, tail 50, exposed culmen 9.9; adult female, wing 66.4, tail 48.5, exposed culmen, 9.8); sides and flanks more strongly washed with olivaceous. (Western United States, and British Columbia, south in winter to southern Mexico.)

Vireosylva gilva swainsonii (p. 155)

ff. Larger (adult male averaging wing 73, tail 52.5, exposed culmen 11.2; adult female, wing 71.7, tail 50.3, exposed culmen 10.8); sides and flanks more faintly tinged with olivaceous. (Mountains of Chihuahua, northwestern Mexico.).....*Vireosylva gilva brewsteri* (p. 158)

dd. Pileum brown, back olive-brown. (*Vireosylva amauronota*.)

e. Paler above, the pileum grayish sepia or deep hair brown, the back light brownish olive. (Mountains of southeastern Mexico.)

Vireosylva amauronota amauronota (p. 158)

A large series from Chapada, Matto Grosso, in the collection of the American Museum of Natural History, is clearly a connecting series, nearly typical specimens of both forms being represented, though a large majority are nearly typical *chivi* as to coloration, but agreeing closely with *agilis* in larger size. The same may be said of specimens from Bahia also, except that most of the specimens seen by me from the latter locality are clearly *V. agilis*, as above characterized. It is a question, however, which can only be settled by examination of the type in the Berlin Museum, whether Lichtenstein's name was based on a specimen representing the southern or northern type. I have not seen specimens from any other locality so small as the two birds (one from the Vermejo River, the other from southern Brazil) brought to the National Museum by the Page Expedition, their measurements comparing with those of a series from Chapada, as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
One adult male from Vermejo River, Paraguay	63	45.5	12	18	11
One adult male from Corumba, Matto Grosso, Brazil	65	49	12	17	.....
Minimum of each measurement in nine adult males from Chapada	67.5	48.5	11	17	10
Average of nine adult males from Chapada.....	70	50.3	12.3	17.8	10.4
FEMALES.					
One adult female from southeastern Brazil.....	62	44	11.5	16	10
Minimum of each measurement in five adult females from Chapada.....	66.5	45	11.5	17	10
Average of five adult females from Chapada.....	68.1	48.2	12.2	17.8	10.2

- ee. Darker above, the pileum deep sooty brown, the back deep brownish olive. (Mountains of Chiapas.)...*Vireosylva amaurota strenua* (p. 159)
- cc. Under parts of body pale yellow. (*Vireosylva josephæ*.)
- d. Darker and browner above, the pileum deep sooty brown, the back olive-brown or brownish olive.
- e. Pileum darker sooty brown; wing longer, tail shorter. (Colombia to Ecuador and Venezuela.)...*Vireosylva josephæ josephæ* (extralimital).^a
- ee. Pileum paler sooty brown; wing shorter, tail longer. (Highlands of Costa Rica.).....*Vireosylva josephæ costaricensis* (p. 159)
- dd. Paler and grayer above, the pileum deep hair brown, the back grayish olive or dull grayish olive-green. (Chiriqui.)
Vireosylva josephæ chiriquensis (p. 161)
- aa. Back pale buffy gray, buffy brown, or cinnamonaceous. (Young.)
- b. Pileum and back more grayish.
- c. Back and pileum grayish brown.
- d. Back and pileum broccoli brown or drab-brown.
Vireosylva calidris calidris, young (p. 137)
- dd. Back and pileum between wood brown and fawn color.
Vireosylva olivacea, young (p. 148)
- cc. Back and pileum pale buffy gray or grayish écreu drab.
Vireosylva gilva gilva, young (p. 153)
- bb. Back and pileum more cinnamonaceous (between cinnamon and fawn color).
Vireosylva josephæ costaricensis, young (p. 159)^b

VIREOSYLVA MAGISTER MAGISTER Lawrence.

BELIZE VIREO.

Adults (sexes alike).—Above plain olive, more grayish on pileum and hindneck, more greenish on rump, upper tail-coverts, and tail; a superciliary stripe of pale yellowish buff, changing to pale olive-gray posteriorly (above auricular region), where insensibly grading into the grayish olive of hindneck; a triangular loreal spot, involving anterior portion of eyelids, dusky; a grayish olive postocular streak, becoming more dusky next to eye; suborbital region and anterior portion of malar region pale grayish buffy or dull buffy whitish, changing gradually into light grayish olive on auricular region and posterior

^a*Vireo josephæ* Sclater, Proc. Zool. Soc. Lond., 1859, 137, pl. 154 (Pallatanga, w. Ecuador; coll. P. L. Sclater); Cat. Am. Birds, 1862, 42 (Pallatanga); Salvin and Godman, Biol. Centr.-Am., Aves, i, 1881, 194, part (Colombia; Ecuador; Peru; Venezuela); Gadow, Cat. Birds Brit. Mus., viii, 1883, 297, part.—*Vireosylva josephæ* Baird, Review Am. Birds, May, 1866, 344, part; Taczanowski, Proc. Zool. Soc. Lond., 1874, 509 (Paltaypampa, centr. Peru).—[*Vireosylva gilva*] var. *josephæ* Ridgway, Am. Journ. Sci., iv, Dec., 1872, 456, in text, part.—*V[ireosylva] gilva* var. *josephæ* Baird, Brewer, and Ridgway, Hist. N. Am. Birds, i, 1874, 360, part.

I have not seen specimens from the type locality, the only South American examples examined being from Bogota, Colombia, and Puerto Cabello, Venezuela. These may or may not exactly agree with those from western Ecuador. The single Venezuelan specimen seen agrees very closely with Costa Rican specimens (*V. j. costaricensis*), but has the pileum slightly darker and the under parts decidedly paler yellow.

^bThe young of other forms not seen.

portion of malar region; under parts very pale buffy yellowish or dull yellowish white, shading laterally into pale greenish olive; under wing-coverts pale straw yellow; maxilla horn brown; mandible with terminal third (more or less) horn brown, much paler basally; legs and feet dusky (bluish gray or grayish blue in life?).

Adult male.—Length (skins), 146–149 (147.5); wing, 76–78 (77); tail, 56–58 (57); exposed culmen, 16–17 (16.5); depth of bill at nostrils, 5.5; tarsus, 22; middle toe, 12.^a

Adult female (?).—Length (skin), 148; wing, 73; tail, 53; exposed culmen, 16; depth of bill at nostrils, 5; tarsus, 23; middle toe, 12.^b

British Honduras (Belize); coast of Honduras (Ruatan Island; Bonacca Island).^c

Vireosylvia magister "Baird, N. S." LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., x, 1871, 20 (Belize, Brit. Honduras; coll. U. S. Nat. Mus.; ex Baird, MS.).

V[ireosylvia] magister BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 359.

Vireo magister SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, sig. 24, Dec., 1881, 191 (Belize).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 295.—RIDGWAY, Proc. U. S. Nat. Mus., x, 1888, 578 (Ruatan I., Honduras; crit.).—SALVIN, Ibis, 1888, 254, part (Ruatan I.; Bonacca I.).

V[ireo] magister RIDGWAY, Man. N. Am. Birds, 1887, 470.

^aTwo specimens, one from Belize (the type), one from Ruatan Island.

^bOne specimen (sex not determined by collector) from Ruatan Island.

^cTwo specimens from Ruatan differ somewhat from two Belize examples (one of them the type of the species), but perhaps not sufficiently to characterize them as subspecifically distinct. At any rate it would require a large series from both localities to show whether the differences indicated are constant or not. The difference consists chiefly in a more decided olive or olive-greenish cast to the plumage, but the two Ruatan specimens differ quite appreciably from one another in this respect, one of them having the upper surface nearly uniform dull olive-greenish, instead of having only the rump, upper tail-coverts, and edges of wing-feathers distinctly of this color. This specimen is also much more strongly tinged with yellowish on the under parts, the under tail- and wing-coverts and the axillars being a pale creamy yellow, the whole abdomen a paler tint of the same. The measurements compare as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at nos- trils.	Tarsus.	Middle toe.
MALES.						
Adult male from Belize (type of the species)	76	58	16	5.5	22	12
Adult male from Ruatan	78	56	17	5.5	22	12
FEMALES.						
Supposed adult female from Belize (in coll. Boet. Soc. N. H.)	70	51	15	.....	20	.....
Supposed adult female from Ruatan	74	58	16	5	23	.....

VIREOSYLVA MAGISTER CINEREA (Ridgway).

COZUMEL VIREO.

Similar to *V. m. magister*, but averaging slightly smaller, and with the coloration decidedly more grayish olive above, especially the pileum, hindneck, back, and scapulars, which are nearer dark smoke gray than olive.

Adult male.—Length (skins), 140–152 (146.7); wing, 74–76 (75.5); tail, 53–59 (57.2); exposed culmen, 15–16 (15.7); depth of bill at nostrils, 5–6 (5.4); tarsus, 20–22 (21); middle toe, 11–12 (11.7).^a

Adult female.—Length (skins), 135–145 (140.4); wing, 68–75 (72.1); tail, 50–55 (53.4); exposed culmen, 15–16 (15.5); depth of bill at nostrils, 5–6 (5.3); tarsus, 20–22 (21); middle toe, 11–12 (11.7).^b

Islands of Cozumel and Mugerres, Yucatan, and adjacent coast of mainland (Puerto Morelos).

Vireosylva cinerea RIDGWAY, Descr. New Birds from Cozumel, Feb. 26, 1885, 2; Proc. Biol. Soc. Washington, iii, Feb. 26, 1885, 2 (Cozumel I., Yucatan; coll. U. S. Nat. Mus.).

Vireo cinereus RIDGWAY, Proc. U. S. Nat. Mus., viii, no. 36, Oct. 17, 1885, 565 (full descr.).

V[ireo] cinereus RIDGWAY, Man. N. Am. Birds, 1887, 470.

Vireo magister (not of Baird) SALVIN, Ibis, 1885, 188 (Cozumel I.); 1888, 254, part (Holbox and Mugerres islands).

VIREOSYLVA CAYMANENSIS (Cory).

GRAND CAYMAN VIREO.

Most like *V. magister cinerea*, but pileum, hindneck, and back pale drab-gray instead of deep smoke gray, and coloration in general much paler, especially sides of head and under parts.

Adult male.—Pileum, hindneck, and upper back pale drab-gray or hair brown, becoming gradually more olivaceous on lower back and

^a Six specimens.

^b Ten specimens.

Specimens from different localities average, respectively, as follows: .

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at nos- trils.	Tarsus.	Middle toe.
MALES.						
Two adult males from Cozumel Island.....	76	57	15.7	6	21.5	11.5
Three adult males from Mujeres Island.....	75.8	56	15.5	5.2	20.7	12
One adult male from Puerto Morelos, Yucatan ...	75	59	16	5.5	21	11
FEMALES.						
Seven adult females from Cozumel Island	72.1	53.2	15.7	5.4	20.8	11.9
Two adult females from Mujeres Island.....	73.5	54	15	5	22	11.5
One adult female from Puerto Morelos.....	69	.....	15	5.5	21	11.5

scapulars, the rump, upper tail-coverts, and edges of rectrices and remiges light grayish olive-green; tertials and inner webs of other remiges and rectrices hair brown; a superciliary stripe of dull white, broadest anteriorly; lores dusky brownish gray; a postocular streak of grayish brown (hair brown) along upper edge of auricular region; suborbital and auricular regions dull grayish buffy white, passing into light brownish gray on sides of neck; malar region, chin, throat, and chest dull white; rest of under parts more yellowish white, the sides and flanks tinged with pale yellowish olive; under tail-coverts, under wing-coverts, and axillars pale sulphur or primrose yellow; maxilla horn brown, darker basally, paler on tomia; mandible paler horn color (in dried skins); legs and feet dusky grayish (grayish blue in life?); length (skin), 144; wing, 74; tail, 56; exposed culmen, 15; depth of bill at nostrils, 5; tarsus, 20; middle toe, 12.^a

Islands of Grand Cayman, Little Cayman, and Cayman Brac, Greater Antilles.^b

Vireo caymanensis CORY, Auk., iv, Jan. 1887, 7 (Grand Cayman, Greater Antilles; coll. C. B. Cory); v, 1888, 157 (Grand Cayman); vi, 1889, 31 (Little Cayman; Cayman Brac); Birds W. I., 1889, 288; Cat. W. I. Birds, 1892, 17, 116, 129, 153.—RIDGWAY, Proc. U. S. Nat. Mus., x, 1887, 573 (Grand Cayman).

VIREOSYLVA CALIDRIS CALIDRIS (Linnæus).

JAMAICAN VIREO.

Adults (sexes alike).—Pileum plain grayish brown (hair brown), without distinct, if any, darker lateral margin; hindneck, back, scapulars, and lesser wing-coverts plain dull brownish olive-green, the rump and upper tail-coverts clearer or more decided olive-green; wings and tail dusky grayish brown with yellowish olive-green edgings, these paler and more yellowish on greater wing-coverts; broad superciliary stripe and sides of head below eyes, pale isabella color or dull grayish buff, the two areas of this color separated by a dusky grayish loreal and postocular streak; sides of throat margined by a dusky grayish submalar streak; chin and throat dull white; chest similar, but tinged with pale grayish olive-green; breast and abdomen white; under tail-coverts pale sulphur yellow; sides and flanks pale yellowish olive or grayish olive-green; axillars and under wing-coverts pale sulphur yellow; inner webs of remiges broadly edged with yellowish white or pale primrose yellow; maxilla horn color or dusky, with paler tomia; mandible pale grayish brown (pale grayish blue in life); iris brownish red; legs and feet dusky in dried skins (grayish blue or bluish gray in life).

Young, first plumage.—Pileum, hindneck, back, scapulars, rump, upper tail-coverts, and lesser wing-coverts plain broccoli brown,

^a One specimen.

^b I have seen specimens from Grand Cayman only.

inclining to fawn color; wings (except lesser coverts) and tail as in adults, but greater wing-coverts indistinctly tipped, as well as edged, with pale yellow; superciliary stripe and sides of head buffy whitish, partly separated by a dusky loreal and postocular mark; malar region, chin, and throat paler buffy white or vinaceous white; rest of under parts white, the sides, flanks, and under tail-coverts tinged with sulphur yellow.

Adult male.—Length (skins), 132–150 (145.4); wing, 80–85 (82.2); tail, 54–59 (56.7); exposed culmen, 15–17.5 (16.3); depth of bill at nostrils, 4.5–5.5 (4.9); tarsus, 18–20 (19); middle toe, 11–12 (11.8).^a

Adult female.—Length (skins), 130–165 (147.6); wing, 72–83 (77.8); tail, 49–58 (52.2); exposed culmen, 15–16 (15.8); depth of bill at nostrils, 5; tarsus, 19–19.5 (19.1); middle toe, 11–12 (11.7).^b

Islands of Jamaica, Haiti, Porto Rico, St. Thomas, and St. Croix, Greater Antilles, and adjacent islands of Sombrero and Saba, Lesser Antilles; island of Trinidad.^c

^aTwenty-one specimens.

^bSix specimens.

Specimens from different islands average, respectively, as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at frontal angle.	Tarsus.	Middle toe.
MALES.						
Six adult males from Jamaica	82.6	57.2	15.8	4.8	18.9	11.6
Four adult males from Santo Domingo	81.2	56.3	16.7	5	19.5	11.7
Ten adult males from Porto Rico	82.4	56.8	16.3	5	19	12
One adult male from Sombrero (type of <i>V. atripennis</i> Lawrence)	81	55	16	5	18.5	11
FEMALES.						
One adult female from Jamaica	83	58	16	5	19	11
One adult female from Santo Domingo	72	47	15	5	19	12
Two adult females from Porto Rico	75.5	50	16	5	19.2	11.2
One adult female from Sombrero (type of <i>V. virginalis</i> Lawrence)	79	52	16	5	19	11.5
One adult female from Saba	82	56	.....	5	19	12

^cI have not seen specimens from St. Croix, which is given on Mr. Cory's authority. Mr. Cory also includes in the range of this form the Lesser Antillean islands of St. Eustatius, St. Christopher, Antigua, Guadeloupe, Santa Lucia, St. Vincent, Grenada, and Barbados; but I am convinced this is an error, all specimens from these islands which I have seen being referable to *V. c. barbadensis*. Mr. Cory probably was misled by specimens discolored by chemical action of the preservative used, to which he refers (Cat W. I. Birds, p. 153).

^dA single specimen (sex not determined) in the collection of the Museum of Comparative Zoology, said to be from Trinidad, and of the usual "Trinidad" style of make-up, agrees with Jamaican and Porto Rican specimens, but has the pileum perceptibly paler and grayer. Its measurements are as follows: Wing, 85; tail, 60; exposed culmen, 19; tarsus, 19; middle toe, 12.

- [*Motacilla*] *calidris* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 184 (Jamaica; based on *Luscinia americana* Edwards, Birds, 121, pl. 121, fig. 2; *Icterus minor nidum suspendus* Sloane, Jam., ii, 299); ed. 12, i, 1766, 329.
- Vireosylvia calidris* BAIRD, Review Am. Birds, May, 1866, 329 (Jamaica; Haiti; Porto Rico; St. Thomas; Santa Cruz; Sombrero).
- [*Vireosylvia*] *calidris* NEWTON (A. and E.), Handb. Jamaica, 1881, 106.
- [*Vireosylvia*] *calidris* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 11, part.
- Vireo calidris* BRYANT, Proc. Bost. Soc. N. H., xi, 1866, 93 (Santo Domingo).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1881, 186, part (Jamaica; Santo Domingo).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 293, part (Santo Domingo).—CORY, Birds Haiti and San Dom., 1885, 49; Auk, iii, 1886, 189, part (Jamaica; Santo Domingo); Birds W. I., 1889, 76, part (do.); Cat. W. I. Birds, 1892, 115, 152, part.—FIELD, Auk, xi, 1894, 127 (Jamaica).—CHAPMAN, Bull. Am. Mus. N. H., vi, 1894, 27 (Trinidad).—CHERRIE, Contr. Orn. San Dom., 1896, 13.
- [*Vireo*] *calidris* CORY, List. Birds W. I., 1885, 10.
- [*Vireo calidris*] α . *V. calidris* GADOW, Cat. Birds Brit. Mus., viii, 1883, 293, part. (Santo Domingo).
- [*Vireosylvia calidris*] var. *calidris* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 359.
- Phyllomanes calidris* GUNDLACH, Anal. Soc. Esp. Hist. Nat., vii, 1878, 168 (Porto Rico); Journ. für Orn., 1878, 158 (Porto Rico).
- [*Muscicapa*] *olivacea* LINNÆUS, Syst. Nat., ed. 12, i, 1766, 327, part (cites *Muscicapa subfusco-viridis*, sive *olivacei coloris*, Edwards, Gleanings, pl. 253; Jamaica).
- Vireo olivacea* DENNY, Proc. Zool. Soc. Lond., 1847, 38, part (Jamaica).
- Vireosylvia olivacea* (not *Vireosylva olivacea* Bonaparte, 1838) GOSSE, birds, Jamaica, 1847, 194.
- (?) *Turdus virens* "Linn"[æus] BODDAERT, Tabl. Pl. Enl., 1783, 16 (based on *Merle de St. Domingue* Daubenton, Pl. Enl., pl. 273, fig. 1).
- (?) *Turdus hispaniolensis* GMELIN, Syst. Nat., i, 1788, 822 (Santo Domingo; based on *Merula dominecensis* Brisson, Orn., ii, 296).
- Muscicapa altiloqua* VIEILLOT, Ois. Am. Sept., i, 1807, 67, pl. 38 (Santo Domingo).—SWAINSON, Fauna Bor.-Am., ii, 1831, 236, in text (crit.).
- Vireo altiloquus* SALLÉ, Proc. Zool. Soc. Lond., 1857, 231 (Santo Domingo).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 354, part.—MARCH, Proc. Ac. Nat. Sci. Philad., 1863, 294 (Jamaica).—LÉOTAUD, Ois. Trinidad, 1866, 250.
- [*Vireosylvia*] *altiloqua* BONAPARTE, Consp. Av., i, 1850, 330.
- Vireosylvia altiloqua* CASSIN, Proc. Ac. Nat. Sci. Philad., 1860, 375 (St. Thomas).—NEWTON, Ibis, 1859, 145 (St. Croix; descr. nest and eggs).—SCLATER, Proc. Zool. Soc. Lond., 1861, 72 (Jamaica); Cat. Am. Birds, 1862, 32 (Jamaica; Santo Domingo; St. Croix).—ALBRECHT, Journ. für Orn., 1862, 195 (Jamaica).—LAWRENCE, Ann. Lyc. N. Y., viii, 1864, 98 (Sombrero; crit.).
- Vireo longirostris* SWAINSON, Fauna Bor.-Am., ii, 1831, 237, part (Jamaica).
- Ph[yllomanes] mystacalis* CABANIS, in Wiegmann's Archiv. für Naturg., 1847 (i), 348 (West Indies).
- Vireo atripennis* LAWRENCE, Proc. Ac. Nat. Sci. Philad., xv, 1863, 106 (Sombrero; coll. G. N. Lawrence).
- Vireosylvia atripennis* LAWRENCE, Ann. Lyc. N. Y., viii, 1864, 98.—BAIRD, Review Am. Birds, 1866, 330, in text.
- Vireosylvia virginialis* LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., viii, Dec. 12, 1864, 98 (Sombrero; coll. G. N. Lawrence).
- Vireo altiloqua barbatula* (not *Phyllomanes barbatulus* Cabanis) CORY, Bull. Nutt. Orn. Club, vi, 1881, 132 (Haiti).
- Vireo calidris barbatula* BOWDISH, Auk, xx, 1903, 16 (Porto Rico; habits; descr. nest).

The following references I am unable to properly place, not having seen specimens from the localities cited:

- [*Vireosylva*] *calidris* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 11, part (Panama; Venezuela).
Vireosylva calidris SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1875, 234 (Venezuela).
Vireo calidris SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1881, 186, part (Lion Hill Station, Panama Railroad; Venezuela; Guiana).
[*Vireo calidris*] β . *V. barbatula* GADOW, Cat. Birds Brit. Mus., viii, 1883, 294, part (Central America; Guatemala; Trinidad; Guiana; Chamicuro, e. Peru).
Vireosylva altiloqua SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 348 (Isthmus of Panama).
Vireosylva frenata DuBUS, Bull. Ac. Roy. Belg., xxii, 1855, 150 (Ocaña, Colombia; see Sclater, Proc. Zool. Soc. Lond., 1859, 138).
Vireo calidris barbatula ALLEN, Bull. Am. Mus. N. H., xiii, 1900, 173 (Bonda, Santa Marta, Colombia, Aug., Sept.).

VIREOSYLVA CALIDRIS BARBADENSIS Ridgway.

BARBADOS VIREO.

Similar to *V. c. calidris*, but sides of head, including superciliary stripe, light gray instead of brownish buff, and pileum brownish gray, margined laterally with a distinct black or dusky line.

Adult male.—Length (skins), 136–168 (150.9); wing, 73–84 (80.1); tail, 49–60 (57.9); exposed culmen, 15.5–17 (16.2); depth of bill at nostrils, 4.5–6 (5.2); tarsus, 18.5–20.5 (19.1); middle toe, 11–13 (12.1).^a

Adult female.—Length (skins), 140–150 (144.1); wing, 73–81 (76.7); tail, 48–58.5 (53.9); exposed culmen, 15–18 (16); depth of bill at nostrils, 5; tarsus, 19–20.5 (19.7); middle toe, 11–13 (12).^b

^a Eleven specimens.

^b Ten specimens.

Specimens from different islands average, respectively, as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at nos- trils.	Tarsus.	Middle toe.
MALES.						
One adult male from St. Eustatius.....	79	58	17	5	20.5	12
One adult male from Guadeloupe.....		59.5	16	5	20	11.5
Four adult males from Dominica.....	81.6	60.5	16.2	5.6	19.9	12.6
One adult male from Santa Lucia.....	80	57	16.5	5.5	20	12
Two adult males from St. Vincent.....	75.5	52.5	16.7	4.7	19.5	11.7
One adult male from Grenada.....	82	59	15.5	5	20	12
One adult male (?) from Barbados (type).....	83	57	16	5	20	12
FEMALES.						
One adult female from Guadeloupe.....	75	51	15	5	20	11
Five adult females from Dominica.....	78.9	55.5	16.7	5	20.1	12.4
One adult female (?) from Santa Lucia.....	76	55	15	5	20	12
One adult female from St. Vincent.....	74	52.5	15	5	19	12
Two adult females from Grenada.....	74	51.5	15.7	5	19	11.5

Specimens from different islands differ somewhat in both coloration and measurements, but without a larger series I would not attempt further subdivision. The

Islands of St. Eustatius, Antigua, Montserrat, Guadeloupe, Dominica, Martinique, Santa Lucia, St. Vincent, Grenada, and Barbados, Lesser Antilles.

- Vireo longirostris* SWAINSON, FAUNA BOR.-AM., ii, 1831, 237, part (St. Vincent).
Vireosylva calidris (not *Motacilla calidris* Linnæus) SCLATER, Proc. Zool. Soc. Lond., 1871, 269 (Santa Lucia); 1889, 326 (Dominica).—SEMPER, Proc. Zool. Soc. Lond., 1871, 649 (Santa Lucia).—LAWRENCE, Proc. U. S. Nat. Mus., i, 1878, 233 (Barbuda), 486 (Antigua).
 [*Vireosylva*] *calidris* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 11, part.
Vireo calidris SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1881, 186, part.—GADOW, Cat. Birds Brit. Mus., viii, 1883, 293, part.—CORY, Auk, iii, 1886, 189, part; iv, 1887, 95 (Martinique); viii, 1891, 47 (Antigua; St. Eustatius), 48 (St. Christopher), 49 (Guadeloupe); Birds W. I., 1889, 76, part; Cat. W. I. Birds, 1892, 115, 152, part (St. Eustatius, St. Christopher, Antigua, Guadeloupe, Dominica, Santa Lucia, St. Vincent, Grenada, Barbados).
 [*Vireosylva calidris*] var. *barbadense* RIDGWAY, in Baird, Brewer, and Ridgway's Hist. N. Am. Birds, i, 1874, 359 (Barbados, Lesser Antilles; coll. U. S. Nat. Mus.).
Vireosylva calidris barbadense CORY, Cat. W. I. Birds, 1892, 152, in text (Barbados, Dominica, St. Vincent, Santa Lucia, Martinique, Grenada; crit.).
Vireosylva calidris var. *dominicana* LAWRENCE, Proc. U. S. Nat. Mus., i, July 30, 1878, 55 (Dominica, Lesser Antilles; coll. U. S. Nat. Mus.), 189 (St. Vincent), 268 (Grenada), 354 (Martinique), 454 (Guadeloupe), 486 (Guadeloupe, Dominica, Martinique, St. Vincent, Grenada).—WELLS, Proc. U. S. Nat. Mus., ix, 1887, 611 (Grenada; food; descr. nest and eggs).
Vireosylva calidris dominicana ALLEN, Bull. Nutt. Orn. Club, v, 1880, 186 (Santa Lucia).
Vireo calidris dominicana RIDGWAY, Proc. U. S. Nat. Mus., xii, 1890, 129 (Santa Lucia).

VIREOSYLVA CALIDRIS BARBATULA (Cabanis).

BLACK-WHISKERED VIREO.

Similar to *V. c. barbadensis*, but dusky line along each side of pileum much less distinct, often obsolete, and olive-green of back duller and grayer; differing from *V. c. calidris* in much paler and less buffy superciliary stripe and auricular region, grayer pileum, duller olive-green of back, etc., and purer white throat and chest.

Adult male.—Length (skins), 134–152 (142.5); wing, 77–82 (80.1); tail, 51–61 (55.9); exposed culmen, 14–15.5 (14.9); depth of bill at nostrils, 4–5 (4.7); tarsus, 17–20 (18.4); middle toe, 10–12.5 (11).^a

Adult female.—Length (skins), 120–140 (131.4); wing, 73–77 (75.5);

type of *V. c. barbadensis* (the only specimen examined from Barbados) is decidedly browner above, both on back and pileum, than those from other islands, but the specimen was first preserved in alcohol, which may possibly account for the differences in color; otherwise, the Barbados bird would have to stand by itself, those from Dominica, etc., constituting a separate form, *Vireosylva calidris dominicana* Lawrence. Two adults (a male and a female) from St. Vincent are decidedly darker above than specimens from other islands.

^aTwenty-five specimens.

tail, 47-53 (52.1); exposed culmen, 12.5-15.5 (14.4); depth of bill at nostrils, 4-5 (4.6); tarsus, 17-19 (18.2); middle toe, 10-11.5 (10.9).^a

Bahamas (islands of Abaco, Biminis, New Providence, Andros, Samana Cay); Cuba (including Isle of Pines); Little Cayman (near Cuba); southern Florida (Key West, Dry Tortugas, Ten Thousand Islands, Punta Rassa, Charlotte Harbor, Tarpon Springs, Tampa, etc.), as far north on Gulf coast as Anclote Keys.

Vireo gilvus (not of Vieillot) D'ORBIGNY, in La Sagra's Hist. Nat. Cuba, Ois., 1839, 43.

Vireo longirostris (not of Swainson) NUTTALL, Man. Orn. U. S. and Can., 2d ed., i, 1840, 359.

Vireo altiloquus (not *Muscicapa altiloqua* Vieillot) GAMBEL, Proc. Ac. Nat. Sci. Philad., 1848, 127 (Florida).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 334, part (coast s. Florida); Cat. N. Am. Birds, 1859, no. 243.

Vireosylva altiloqua CASSIN, Proc. Ac. Nat. Sci. Philad., 1851, 152 (Florida); Illustr. Birds Cal., Tex., etc., 1854, 8, 221, part, pl. 37 (Florida).—BRYANT, Proc. Bost. Soc. N. H., vii, 1859, 113 (New Providence, Bahamas).—LAWRENCE, Ann. Lyc. N. Y., vii, 1860, 266 (Cuba; crit.).—ALBRECHT, Journ. für Orn., 1861, 206 (Cuba).

Vireosylva altiloqua BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 328 (Florida). *Vireo* (*Vireosylva*) *altiloquus* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, p. "xxxv" (=xxxv).

Vireo olivaceus (not *Muscicapa olivacea* Linnæus) THIENEMANN, Journ. für Orn., 1857, 147 (Cuba; descr. eggs).

Phyllomanes barbatulus CABANIS, Journ. für Orn., iii, Nov., 1855, 467 (Cuba; coll. Berlin Mus. ?).—GUNDLACH, Journ. für Orn., 1861, 324 (Cuba); 1872, 401 (do.).—BREWER, Proc. Bost. Soc. N. H., vii, 1860, 307 (Cuba).

Vireosylva barbatula BAIRD, Review Am. Birds, May, 1866, 331 (Cuba; Bahamas; Charlotte Harbor, Florida).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 17, fig. 1.

Vireosylva calidris, var. *barbatulus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 360.

Vireosylva calidris barbatula RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 174, 231; Nom. N. Am. Birds, 1881, no. 137.

[*Vireo*] *calidris barbatula* CORY, List Birds W. I., 1885, 10.

^aSeventeen specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at nos- trils.	Tarsus.	Middle toe.
MALES.						
Ten adult males from Cuba	79.7	54.7	15.2	4.5	18.6	10.7
Ten adult males from Bahamas	80.6	57.7	15	4.9	18.3	11.1
Four adult males from southern Florida	80	54.7	14.4	4.7	18.6	11.4
FEMALES.						
Ten adult females from Cuba	75	50.5	14.4	4.6	18.1	10.9
Seven adult females from Bahamas	76.2	52.1	14.5	4.7	18.3	11

While, as a rule, specimens from the Bahamas and southern Florida are slightly paler than those from Cuba, the difference is too slight and inconstant to warrant separation.

Vireo calidris barbatula CORY, Auk, iii, 1886, 190; Birds W. I., 1889, 77.—CHAPMAN, Bull. Am. Mus. N. H., iv, 1892, 309 (Trinidad, Cuba; song).

Vireo calidris barbatulus COUES, Birds Col. Val., 1878, 491 (synonymy).—CORY, Cat. W. I. Birds, 1892, 115 (Abaco, Biminis, Andros, New Providence, and Samana Cay, Bahamas; Cuba; Isle of Pines; Little Cayman).—BANGS, Auk, xvii, 1900, 288 (New Providence and Eleuthera islands, Bahamas; note on molt).

[*Vireo*] *altiloquus* var. *barbatulus* COUES, Key N. Am. Birds, 1872, 120.

Vireo altiloquus . . . var. *barbatulus* COUES, Check List, 1873, no. 123.

Vireo altiloquus var. *barbatulus* CORY, Birds Bahama I., 1880, 82.

Vireo altiloquus barbatulus COUES, Check List, 2d ed., 1882, no. 172.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 623.—SCOTT, Auk, iv, 1887, 133 (Punta Rasa and Tampa, s. w. Florida, summer); v, 1888, 186 (Mangrove Keys, Gulf coast Florida, north at least to mouth of Anclote R.; breeding); vii, 1890, 14 (Tampa, Tarpon Springs, Punta Rasa, and Key West, Florida; common and breeding along coast as far north as Anclote Keys), 312 (Dry Tortugas, 1 spec., Apr. 29); ix, 1892, 213 (Caloosahatchee R., Florida; breeding).—NORTHROP, Auk, viii, 1891, 70 (Andros I., Bahamas).—CORY, Auk, viii, 1891, 296 (Bimini islands, Bahamas), 298 (Abaco I.), 351 (Inagua).—RIDGWAY, Auk, viii, 1891, 335 (New Providence).

Vireo barbatula BAIRD, Review Am. Birds, 1866, 163, fig. 9.

[*Vireo*] *altiloquus barbatulus* COUES, Key N. Am. Birds, 2d ed., 1884, 332.—RIDGWAY, Man. N. Am. Birds, 1887, 470.

[*Vireo*] *calidris* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 11, part.

Vireo calidris (not *Motacilla calidris* LINNÆUS) SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1881, 186, part.—GADOW, Cat. Birds Brit. Mus., viii, 1883, 293, part.

VIREOSYLVA CALIDRIS GRANDIOR (Ridgway).

OLD PROVIDENCE VIREO.

Largest representative of the genus (wing 84, tail 68, exposed culmen 18.5); resembling *V. c. barbadensis* in coloration, but paler, the pileum and hindneck light mouse gray, with the dusky lateral streak very indistinct, and the dusky submalar streak very much narrower.

Adult male.—Length (skin), 162; wing, 84; tail, 68; exposed culmen, 18.5; depth of bill at nostrils, 6; tarsus, 21.5; middle toe, 13. ^a

Island of Old Providence, Caribbean Sea.

Vireosylva grandior RIDGWAY, Proc. U. S. Nat. Mus., vii, July 29, 1884, 178 (Old Providence Island, Caribbean Sea; coll. U. S. Nat. Mus.).—CORY, Auk, iv, 1887, 180 (Old Providence).

VIREOSYLVA CALIDRIS CANESCENS (Cory).

SAINT ANDREWS VIREO.

“*Sp. Char.*—Resembles *Vireosylva grandior* Ridgw., but is ashy instead of greenish on the back, and lacks the olive on the flanks and the yellowish crissum; tail feathers not green.

^aOne specimen, the type (no. 97846, coll. U. S. Nat. Mus.).

"*Adult* ♂ (Type, no. 10195; coll. C. B. Cory).—Head ash gray, becoming dull grayish olive on the back; a superciliary stripe of dull, buffy white, bordered by a narrow streak of brown on the sides of the crown; a malar stripe of dull brown. Under parts white, faintly tinged with olive; crissum dull white, showing a slight yellowish tinge at the vent; quills and tail brown, showing a tinge of olive on the outer webs of the inner feathers.

"Length, 5.60 (142 mm.); wing, 3.50 (87); tail, 2.60 (66); tarsus, 80 (20.5); bill, 0.70 (18)."^a

Island of St. Andrews (near Old Providence), Caribbean Sea.

Vireosylva canescens CORY, Descrip. Six New Species Birds Old Providence and St. Andrews, May 27, 1887, 2; Auk, iv, July, 1887, 178 (St. Andrews (L, Caribbean Sea; coll. C. B. Cory).

VIREOSYLVA FLAVOVIRIDIS FLAVOVIRIDIS Cassin.

YELLOW-GREEN VIREO.

Adults (sexes alike).—Pileum and hindneck plain mouse gray, the former margined laterally, in part, by a more or less distinct dusky line, this sometimes obsolete; rest of upper parts plain bright olive-green; an indistinct superciliary stripe of paler gray, this sometimes obsolete behind eye; lores dull grayish, darker next to anterior angle of eye; auricular region light olive-green, fading into pale gray or grayish white on suborbital and malar regions; chin, throat, median portion of chest and breast, and abdomen white; sides and flanks olive-yellow, blending with olive-green of upper parts on sides of neck; under tail-coverts, under wing-coverts and axillars clear sulphur yellow or light lemon yellow; maxilla dusky or brownish (in dried skins) with paler tomia; mandible whitish or pale brownish (grayish blue or bluish gray in life); iris red or brownish red; legs and feet horn color (grayish blue in life).

Young (first plumage).—Pileum, hindneck, back, rump, scapulars, lesser wing-coverts, and postocular streak pinkish drab; a whitish superciliary stripe; underparts white medially, primrose yellow laterally, the under tail-coverts and under wing-coverts sulphur yellow; remiges and rectrices as in adults.

Adult male.—Length (skins), 131–157 (139.5); wing, 75–82 (78.1); tail, 50–60 (55.1); exposed culmen, 14–15 (14.4); tarsus, 18–19 (18.9); middle toe, 10–11 (10.7).^b

Adult female.—Length (skins), 123–142 (136.7); wing, 74–80 (76.3);

^a Original description.

^b Twenty-four specimens.

tail, 49–55 (51.6); exposed culmen, 13–15 (14); tarsus, 17–19 (18.4); middle toe, 10–11 (10.8).^a

From northern Mexico, in States of Tamaulipas (Victoria; Alta Mira), Nuevo Leon (Monterey), Sinaloa (Mazatlan; Rosario), etc., southward over rest of Mexico (including Yucatan) and whole of Central America (both coasts) to Isthmus of Panama, and southward to Ecuador (Rio Napo; Quito), Peru (Guayango), and Bolivia. Accidental in southern Texas (Fort Brown, one specimen, August 23, 1877), southern California (Riverside, Los Angeles County, one specimen September 29, 1887), and Canada (Godbout, Quebec, one specimen, May 13, 1883).

Vireosylva flavoviridis CASSIN, Proc. Ac. Nat. Sci. Philad., v, Feb., 1851, 152, pl. 11 (Panama; coll. Ac. Nat. Sci. Philad.).—SCLATER, Proc. Zool. Soc. Lond., 1856, 298 (Cordova, Vera Cruz); 1859, 375 (Playa Vicente, Oaxaca); Cat. Am. Birds, 1862, 44 (Guatemala).—LAWRENCE, Ann. Lyc. N. Y., vii, 1861, 323 (Panama R. R.); Mem. Bost. Soc. N. H., ii, 1874, 272 (Mazatlan and Rosario, Sinaloa); Bull. U. S. Nat. Mus., no. 4, 1876, 17 (Tapana and Santa Efigenia, Oaxaca).—BAIRD, Review Am. Birds, 1866, 336 (Monterey, Nuevo Leon; Mazatlan; Rosario; near Colima; San José, Costa Rica; Isthmus of Panama).—SALVIN, Proc. Zool. Soc. Lond., 1870, 184 (Mina de Chorchá, Bugaba, and Chitira, Veragua).—SUMICHRIST, Mem. Bost. Soc. N. H., i, 1869, 547 (temp. region Vera Cruz, up to 4,866 ft. on Orizaba).—FRANTZIUS, Journ. für Orn., 1869, 295 (Costa Rica).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 366.—(?) TACZANOWSKI, Proc. Zool. Soc. Lond., 1874, 509 (Monterico, centr. Peru).—MERRILL, Proc. U. S. Nat. Mus., i, 1878, 125 (Fort Brown, Texas, 1 spec., Aug. 23).—RIDGWAY, Proc. U. S. Nat. Mus., i, 1878, 125 (synonymy).—BOUCARD, Proc. Zool. Soc. Lond., 1878, 53 (San José, Costa Rica).—NETTING, Proc. U. S. Nat. Mus., v, 1882, 391 (La Palma de Nicoya, w. Costa Rica).

^a Eleven specimens.

Average measurements according to geographic area are as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Nine adult males from eastern Mexico.....	79.2	55.7	14.7	19	10.5
Seven adult males from western Mexico.....	78	54.8	14.4	19	10.7
One adult male from Tabasco.....	76	54	14	18	10
One adult male from Campeche.....	80	57	14	19	11
Six adult males from Costa Rica, Veragua, and Panama...	76.8	54.1	14	18.6	10.8
FEMALES.					
Four adult females from eastern Mexico.....	76.5	53	14	18	10.7
Three adult females from western Mexico.....	74.3	49.3	14	18.6	11
One adult female from Tabasco.....	76	52	14	19	10
Three adult females from Costa Rica.....	78	52	13.6	18.3	11

Specimens from eastern Mexico (Tamaulipas to Campeche) are appreciably brighter olive-green above and have the sides and flanks brighter olive-yellow than those from western Mexico, Costa Rica, Veragua, and Panama, and province of Santa Marta, Colombia.

Vireo (*Vireosylva*) *flavoviridis* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, p. "xxxxv" (= xxxv).

Vireosylva flavo-viridis SCLATER and SALVIN, Ibis, 1859, 12 (Guatemala).—SALVIN, Proc. Zool. Soc. Lond., 1867, 137 (Santa Fé and Cordillera de Tolé, Veragua).—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 96 (San José and Atenas, Costa Rica).—BREWER, Bull. Nutt. Orn. Club, iii, 1878, 152 (Fort Brown, Texas).

[*Vireosylva*] *flavo-viridis* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 11.

[*Vireosylva flavoviridis*] var. *flavoviridis* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 359.

Vireo flavoviridis BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 332 (Monterey, Nuevo Leon); Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 12 (do.); Cat. N. Am. Birds, 1859, no. 241.—BREWER, Ibis, 1878, 487 (Fort Brown, Texas).—COUES, Birds Col. Val., 1878, 490, footnote.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1881, 189, part (n. Yucatan; Retalhuleu and Chisec, Guatemala; Volcan de Irazú, Costa Rica; Obispo and Paraiso stations, Panama R. R.; etc.; Colombia?; Ecuador?; Peru?; upper Amazonas?).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 295, part (Guayango, Peru?; Rio Napo, e. Ecuador?; Bolivia??; Veragua; Panama).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 625.—ZELEDON, Anal. Mus. Nac. Costa Rica, i, 1887, 108 (San José, Alajuela, Tambon de Alajuela, Costa Rica; Panama).—PRICE, Auk, v, 1888, 210 (Riverside, Los Angeles Co., California, 1 spec., Oct. 1,^a 1887).—CHERRIE, Auk, vii, 1890, 329–331 (San José, Costa Rica; habits; descr. nest and eggs), 335 (San José, mid. Apr. to Sept. 29).—JOY, Proc. U. S. Nat. Mus., xvi, 1893, 778 (Barranca Ibarra, Jalisco).—ALLEN, Bull. Am. Mus. N. H., xiii, 1900, 173 (Bonda, Santa Marta, Colombia, Aug. to Oct.).—GRINNELL (J.), Pacific Coast Avifauna, no. 3, 1902, 62.—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 395.

[*Vireo*] *flavoviridis* RIDGWAY, Man. N. Am. Birds, 1887, 470.

Phyllomanes flavoviridis CABANIS, Journ. für Orn., 1861, 93 (Costa Rica).

[*Vireosylva agilis flavoviridis*] RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 232; Nom. N. Am. Birds, 1881, no. 136.

Vireo flavoviridis COUES, Check List, 2d ed., 1882, no. 171.—MERRIAM, Bull. Nutt. Orn. Club, vii, 1883, 213, 244 (Godbout, Canada; 1 spec., found dead, May 13, 1883).

[*Vireo*] *flavoviridis* COUES, Key N. Am. Birds, 2d ed., 1884, 332.

Vireo agilis (not *Lanius agilis* Lichtenstein) ZELEDON, Anal. Mus. Nac. Costa Rica, i, 1887, 108 (San José, Costa Rica).

VIREOSYLVA FLAVOVIRIDIS FORRERI (Madarász).

FORRER'S VIREO.

Similar to *V. f. flavoviridis*, but larger; superciliary stripe darker gray, less distinct, often obsolete; dusky line along each side of pileum also less distinct, often obsolete.

Adult male.—Length (skins), 150–158 (154); wing, 80–86 (83); tail, 56–61 (59.2); exposed culmen, 14–15.5 (14.9); tarsus, 20–21 (20.1); middle toe, 11–12 (11.1).^b

^a The date given on label of the specimen, however, is Sept. 29.

^b Seven specimens.

Tres Marias Islands (Island of Maria Madre), western Mexico.

Vireo flavoviridis (not *Vireosylva flavoviridis* Cassin) SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1881, 189, part (Tres Marias).

Vireo forreri MADARÁSZ, Természettajzi Füzetek, ix, pt. 1, 1885, 85, pl. 6 (Tres Marias I., w. Mexico; coll. Hungarian Nat. Mus.).

V[ireo] forreri RIDGWAY, Man. N. Am. Birds, 1887, 590; 2d ed., 1896, 607.

Vireo flavoviridis forreri NELSON, N. Am. Fauna, no. 14, 1899, 54 (Tres Marias; crit.).

VIREOSYLVA INSULANUS (Bangs).

SAN MIGUEL VIREO.

Similar to *V. flavoviridis flavoviridis*, but smaller; back, etc., duller olive-green, and dusky lateral line of pileum and pale superciliary stripe more distinct; about the size of *V. chivi agilis*, or slightly smaller, with pileum more brownish gray, back, etc., much duller olive-green, superciliary stripe much less distinct, dusky postocular streak obsolete, and sides much more extensively yellowish olive or olive-yellow.

Adult male.—Length (skins), 131–133 (132); wing, 74.5–78 (76.2); tail, 53–56 (54.5); exposed culmen, 13–14 (13.5); tarsus, 16.5–18 (17.2); middle toe, 11–12 (11.5).^a

Adult female.—Length (skins), 119–125 (122); wing, 72–73 (72.5); tail, 48.5–50 (49.2); exposed culmen, 13.5; tarsus, 17–17.5 (17.2); middle toe, 10–11 (10.5).^a

San Miguel Island, Gulf of Panama.

Vireo chivi agilis (not *Lanius agilis* Lichtenstein) BANGS, Auk, xviii, Jan., 1901, 30 (San Miguel I., Gulf of Panama).

Vireo insulanus BANGS, Proc. New Engl. Zool. Club, iii, Mar. 31, 1902, 73 (San Miguel I., Gulf of Panama; coll. E. A. and O. Bangs).

VIREOSYLVA OLIVACEA (Linnæus).

RED-EYED VIREO.

Adults (sexes alike).—Pileum plain mouse gray, margined laterally by a narrow line of black or dusky; rest of upper parts plain grayish olive-green; a broad superciliary stripe of dull white or very pale brownish gray; a dusky gray loreal streak, becoming darker at anterior angle of eye, and a less distinct postocular streak of dusky; auricular, suborbital, and malar regions pale olive or pale brownish olive, passing into olive-greenish on sides of neck; under parts white, the sides and flanks tinged, more or less strongly, with pale yellowish olive or olive-yellow, the under tail-coverts more or less tinged with sulphur yellow; axillars and under wing-coverts pale sulphur yellow; inner webs of remiges edged with yellowish white; maxilla grayish dusky or blackish; mandible pale grayish (pale grayish blue or bluish gray

^a Two specimens.

in life); iris brownish red; legs and feet dusky in dried skins, grayish blue in life.

Young (first plumage).—Pileum, hindneck, back, scapulars, rump, upper tail-coverts, and lesser wing-coverts plain vinaceous-brown, varying from pale broccoli brown to pale fawn color or deep éceru drab; remiges and rectrices as in adults; greater wing-coverts edged and narrowly tipped with pale olive-yellow; superciliary stripe and under parts white, the under tail-coverts and flanks tinged with sulphur yellow; a distinct dusky loreal streak and indistinct postocular streak; sides of head below this line white or brownish white.

Adult male.—Length (skins), 123–149 (137.3); wing, 77–85 (81); tail, 51–60 (55); exposed culmen, 11–14 (12.7); tarsus, 17–19 (18); middle toe, 11–12.5 (11.5).^a

Adult female.—Length (skins), 118–142 (131.8); wing, 76–83 (78.1); tail, 47–56 (52.5); exposed culmen, 12–13 (12.3); tarsus, 17–19 (18); middle toe, 11.^b

Temperate North America in general, except arid districts; north to Nova Scotia, Prince Edward Island, Keewatin (Norway House; Oxford House), Saskatchewan (Cumberland House), and southern Mackenzie (Fort Resolution; Fort Simpson); west to British Columbia (both sides of Cascade Range), Washington, Colorado, Utah, etc.: breeding south over whole of wooded region east of Rocky Mountains as far south as Caloosahatchee River, southern Florida, and as far west as Tom Green County, western Texas; wintering from southern Florida to Bahamas (Watling Island; Great Inagua), Cuba?, Porto Rico?, and through Mexico, Central America, and South America, as far as Brazil (Para; Chapada, province of Matto Grosso), Bolivia, and eastern Peru. Accidental in Greenland (one specimen, 1844) and in England.

^aTwenty-seven specimens.

^bEighteen specimens.

Specimens from different geographic areas average, respectively, as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Ten adult males from Atlantic coast district.....	80.9	54.3	13	18.2	11.1
Ten adult males from Mississippi Valley.....	80.3	55.2	12.9	17.9	11
Seven adult males from Rocky Mountains and British Columbia.....	82.1	55.9	12	18.1	11.4
FEMALES.					
Ten adult females from Atlantic coast district.....	77.7	50.9	12.2	17.9	11
Seven adult females from Mississippi Valley.....	77.9	50.3	12.6	18	11
One adult female from British Columbia.....	83	53	12	19	11

[*Muscicapa*] *olivacea* LINNÆUS, Syst. Nat., ed. 12, i, 1766, 327, part (based on *Muscicapa olivacea* Edwards, Birds, v, 93, pl. 253; *Red eye'd Fly-Catcher*, *Muscicapa oculis rubra*, Catesby, Nat. Hist. Carolina, i, 54, pl. 54, lower fig. ^a).—GMELIN, Syst. Nat., i, 1788, 938, part.—LATHAM, Index Orn., i, 1790, 482.

Muscicapa olivacea WILSON, Am. Orn., ii, 1810, 55, pl. 10, fig. 3.—STEPHENS, Shaw's Gen. Zool., x, 1817, 379.—BONAPARTE, Journ. Ac. Nat. Sci. Phila., iv, 1824, 176.

Lanius olivaceus LICHTENSTEIN, Preis-Verz. Mex. Vög., 1823, 49.

Vireo olivaceus BONAPARTE, Ann. Lyc. N. Y., ii, 1826, 71.—SWAINSON and RICHARDSON, Fauna Bor.-Am., ii, 1831, 233.—NUTTALL, Man. Orn. U. S. and Can., i, 1832, 312.—AUDUBON, Orn. Biog., ii, 1834, 287, pl. 150; Synopsis, 1839, 162; Birds Am., oct. ed., iv, 1842, 155, pl. 243.—WOODHOUSE, in Rep. Sitgreaves' Expl. Zuffi and Col., 1853, 76.—MAXIMILIAN, Journ. für Orn., 1858, 187 (Pennsylvania, etc.).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 331; Rep. U. S. and Mex. Bound. Surv., ii, pt. 2, 1859, 12 (Devils R., Texas); Cat. N. Am. Birds, 1859, no. 240.—WILLIS, Ann. Rep. Smithson. Inst. for 1858 (1859), 282 (Nova Scotia).—BREWER, Proc. Bost. Soc. N. H., vii, 1860, 307 (Cuba).—VERRILL, Proc. Bost. Soc. N. H., ix, 1862, 138 (Anticosti).—BLAKISTON, Ibis, 1862, 5 (Forks of Saskatchewan); 1863, 66 (Saskatchewan).—MCLWRAITH, Proc. Essex Inst., v, 1866, 87 (Hamilton, Ontario).—(?) FINSCH, Proc. Zool. Soc. Lond., 1870, 565 (Trinidad).—COUES, Check List, 1873, no. 122; 2d ed., 1882, no. 170; Birds N. W., 1874, 96; Birds Col. Val., 1878, 495.—ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 176 (mts. Colorado, up to 11,000 ft.; Ogden, Utah); Proc. Bost. Soc. N. H., xvii, 1874, 54 (upper Missouri R.); Bull. Am. Mus. N. H., iii, 1891, 346 (Chapada, prov. Matto Grosso, s. w. Brazil, Dec. 21, Feb. 14); Auk, xvii, 1900, 366 (Santa Marta, Colombia, Apr. 3; Bucaramanga, Colombia).—MERRIAM, Rep. U. S. Geol. Surv. Terr. for 1872 (1873), 714 (Utah).—HENSEHAW, Rep. Orn. Specs. Wheeler's Surv., 1874, 42 (Ogden, Utah, Sept.).—HOFFMAN, Proc. Bost. Soc. N. H., xviii, 1877, 171 (Dakota).—BATCHELDER, Bull. Nutt. Orn. Club, iii, 1878, 97 (spurious primary); Auk, ix, 1892, 395 (Little Dalles, Washington, and upper Columbia R.).—BREWSTER, Bull. Nutt. Orn. Club, iii, 1878, 115 (descr. first plumage).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1881, 188.—GADOW, Cat. Birds Brit. Mus., viii, 1883, 294.—BICKNELL, Auk, i, 1884, 217 (song).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 624.—CORY, Auk, iii, 1886, 190 (West Indian references); ix, 1892, 48 (Watling I., Bahamas), 49 (Inagua); Birds W. I., 1889, 77 (do.; Cuba); Cat. W. I. Birds, 1892, 116 (Watling I. and Great Inagua, Bahamas; Cuba; Porto Rico).—ZELEDON, Anal. Mus. Nac. Costa Rica, i, 1887, 108 (Costa Rica).—LLOYD, Auk, iv, 1887, 295 (Tom Green Co., w. Texas, breeding).—COOKE, Bird. Migr. Miss. Val., 1888, 233 (dates, etc.).—RIDGWAY, Orn. Illinois, i, 1889, 181.—SCOTT, Auk, vii, 1890, 15 (Tarpon Springs, Punta Rassa, and Key West, Florida, migr.); ix, 1892, 213 (Caloosahatchee R., Florida, breeding).—CHAPMAN, Bull. Am. Mus. N. H., iii, 1890, 149 (Ashcroft, common, and Ducks, abundant, British Columbia).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1890, 614 (Manitoba; summer resid.; habits; song).—CHERRIE, Auk, vii, 1890, 335 (San José, Costa Rica, Oct. 9 to April 20).—ATTWATER, Auk, ix, 1892, 340 (San Antonio, Texas, summer resid.).—BATCHELDER, Auk, ix, 1892, 395 (upper Columbia R., British Columbia; Little Dalles, Washington).—NEHRING, Our Native Birds, etc., i, 1893, 284, pl. 15, fig. 4.—DWIGHT, Auk, x, 1893, 12 (Prince Edward I., breeding).—RICHMOND, Proc.

^a Cites also *Muscicapa jamaicensis* Brisson, Orn., ii, 410, which = *V. calidris calidris*.

- U. S. Nat. Mus., xvi, 1893, 486 (Rio Escondido, Nicaragua, Sept. 10).—WAYNE, Auk, xii, 1895, 365 (Wacissa R., n. w. Florida, breeding).—MERILL, Auk, xv, 1898, 18 (Fort Sherman, Idaho, summer resid.).—BROOKS, Auk, xvii, 1900, 107 (s. British Columbia, abundant both sides of Cascade Range).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 395.
- Vireo olivacea* DENNY, Proc. Zool. Soc. Lond., 1847, 38, part (United States).
- [*Vireo*] *olivaceus* COUES, Key N. Am. Birds, 1872, 120.
- [*Vireo*] *olivaceus* COUES, Key N. Am. Birds, 2d ed., 1884, 331.—RIDGWAY, Man. N. Am. Birds, 1887, 470.
- [*Vireo*] *olivacea* CORY, List Birds W. I., 1885, 10.
- Vireosylva olivacea* BONAPARTE, Geog. and Comp. List, 1838, 26.—GRAY, List Gen. Birds, 1840, addenda.—REINHARDT, Ibis, 1861, 7 (Greenland, 1 spec., 1844).
- Vireosylva olivacea* BONAPARTE, Consp. Av., i, 1850, 329.—REINHARDT, Vid. Med. for 1853 (1854), 82 (Greenland); Journ. für Orn., 1854, 439 (do.).—SCLATER, Proc. Zool. Soc. Lond., 1855, 151 (Bogota, Colombia); 1859, 363 (Jalapa, Vera Cruz); Cat. Am. Birds, 1862, 43 (Guatemala; Colombia; New Jersey); Ibis, 1864, 394 (England).—SCLATER and SALVIN, Ibis, 1859, 12 (Guatemala); Proc. Zool. Soc. Lond., 1870, 836 (San Pedro, Honduras); 1873, 258 (upper Ucayali, Chyavetas, Pebas, and Chamicuros, e. Peru); 1876, 16 (Huiro and Maranura, Peru), 1879, 495.—BAIRD, Review Am. Birds, 1866, 333.—(?) LÉOTAUD, Ois. Trinidad, 1866, 250.—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 96 (San José, Costa Rica).—FRANTZIUS, Journ. für Orn., 1869, 295 (San José, Costa Rica).—ALLEN, Bull. Mus. Comp. Zool., ii, 1871, 270 (e. Florida, winter).—HAETING, Handb. Brit. Birds, 1872, 99 (England).—(?) LAYARD, Ibis, 1873, 377 (Pará, lower Amazon).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 17, fig. 2.—RIDGWAY, Field and Forest, iii, 1877, 197 (Colorado); Proc. U. S. Nat. Mus., iii, 1880, 174; Nom. N. Am. Birds, 1881, no. 135.—BOUCARD, Proc. Zool. Soc. Lond., 1878, 53 (San José, Costa Rica, Jan. to May).—NEHRING, Bull. Nutt. Orn. Club, vii, 1882, 11 (s. e. Texas, breeding).—HAY, Bull. Nutt. Orn. Club, vii, 1882, 91 (Memphis, Tennessee, and Vicksburg and Jackson, Mississippi, breeding).—BAILEY (H. B.), Bull. Nutt. Orn. Club, viii, 1883, 38 (St. Simons I., Georgia, breeding).
- Vireo* (*Vireosylva*) *olivacea* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, p. "xxxv" (=xxxv).
- Vireo* (*Vireosylva*) *olivaceus* ALLEN, Proc. Essex Inst., iv, 1864, 66.
- Vireosylva olivaceus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 363, pl. 17, fig. 3.
- [*Vireosylva*] *olivacea* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 11.
- [*Vireosylva*] *olivacea* JORDAN, Man. Vertebr. E. U. S., 4th ed., 1884, 75.
- [*Vireosylva olivaceus*] var. *olivaceus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 359.
- Phyllomanes olivaceus* CABANIS, Mus. Hein., i, 1850, 63.
- Phyllomanes olivaceus* CABANIS, Journ. für Orn., 1860, 404.—GUNDLACH, Journ. für Orn., 1872, 403 (Cuba); 1878, 158 (Porto Rico); Orn. Cuba, 1876, 55; 1878, 158 (Porto Rico); Anal. Soc. Esp. Hist. Nat., vii, 1878, 169 (Porto Rico).
- Vireo virescens* VIEILLLOT, Ois. Am. Sept., i, 1807, 84, pl. 53 (Pennsylvania?).
- [*Vireo*] *virescens* GRAY, Gen. Birds, i, 1847, pl. 65.
- Vireo bogotensis* BRYANT, Proc. Bost. Soc. N. H., vii, 1860, 227 (Bogota, Colombia).
- Vireosylva bogotensis* LAWRENCE, Ann. Lyc. N. Y., viii, 1863, 484 (Panama R. R.).
- Vireo flaviviridis* (not *Vireosylva flavoviridis* Cassin) BARBOUR, Auk, xiii, 1896, 263 (Brown Co., Nebraska; error corrected by Bruner, Auk, xiv, 1897, 323).

VIREOSYLVA PHILADELPHICA Cassin.

PHILADELPHIA VIREO.

Adults (sexes alike).—Pileum plain mouse gray; hindneck, back, scapulars, rump, and upper tail-coverts plain grayish olive-green; wings and tail dark brownish gray or hair brown with light olive-greenish edgings, these broader and more grayish (sometimes distinctly gray) on greater wing-coverts; lesser and middle wing-coverts olive-gray; a distinct superciliary stripe of dull whitish; a triangular loreal mark (most distinct next to eye) and a more or less distinct postocular streak dusky grayish; auricular and malar regions pale olive, becoming paler (sometimes whitish) beneath eye; under parts mostly dull sulphur or primrose yellow, the chin and abdomen more or less extensively whitish, the yellow deepest on chest;^a under wing-coverts and axillars pale primrose yellow; inner webs of remiges edged with white; maxilla dark horn color with paler tomia; mandible paler (bluish gray in life?); iris brown; legs and feet dusky (bluish gray or grayish blue in life?).

Young (in first autumn and winter).—Similar to adults, but pileum olive, rather than gray, and under parts more extensively and deeply yellow (between sulphur yellow and straw yellow).

Adult male.—Length (skins), 110–118 (113.5); wing, 65–69 (66.7); tail, 44–48 (45.7); exposed culmen, 10; tarsus, 16–18 (17.1); middle toe, 9.5–10 (9.9).^b

Adult female.—Length (skins), 108–122 (115); wing, 62–66 (64.6); tail, 43–46 (44.6); exposed culmen, 10; tarsus, 17; middle toe, 10.^c

Eastern North America; north to Maine, New Brunswick (Grand Falls), Ontario (Moose Factory, Parry Sound, etc.), Manitoba (Fort Pelly; Duck Mountain), Athabasca (Fort Chippewyan; Big Cascade Rapids, Athabasca R.), etc.; breeding from Ontario (Moose Factory; Parry Sound?; Lansdown Station) and Manitoba (Fort Pelly; Duck Mountain) for an undetermined distance southward;^d migrating southward over whole of United States east of the Great Plains (more sparingly east of Alleghenies) to Central America (Guatemala to Chiriqui and Veragua. (No Mexican nor West Indian records.)

Vireosylva philadelphia CASSIN, Proc. Ac. Nat. Sci. Phila., v, Feb., 1851, 153 (near Philadelphia, Pennsylvania; coll. Ac. Nat. Sci. Phila.?); vi, 1852, pl. 1, fig. 2.—BREWER, Proc. Bost. Soc. N. H., ii, 1857, 108–111 (Wisconsin; habits, geog. range, etc.).—SCLATER and SALVIN, Ibis, 1859, 12 (Guate-

^a There is much individual variation in the relative extent of the yellow and white on the under parts, either color prevailing in different specimens.

^b Six specimens.

^c Five specimens.

^d Said by Nelson (Bull. Essex Inst., viii, 1876, 102, 152) to probably breed in northeastern Illinois, 60 miles south of Chicago, and by Butler (Birds of Indiana, 1897, 1011) to breed in Starke and Carroll counties, in that State.

- mala).—BAIRD, Review Am. Birds, 1866, 340 (Moose Factory, Hudson Bay; Waterville, Maine; Coban, Guatemala; San José, Costa Rica, etc.).—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 96 (San José, Grecia, and Dota Mts., Costa Rica).—FRANTZIUS, Journ. für Orn., 1869, 295 (Costa Rica).—ALLEN, Am. Nat., iii, 1869, 504 (Minneapolis, Minnesota, etc.).—SALVIN, Proc. Zool. Soc. Lond., 1870, 184 (Chitra, Veragua).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 17, fig. 4.—BOUCARD, Proc. Zool. Soc. Lond., 1878, 53 (San José, Costa Rica, Jan.).—RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880, 174; Nom. N. Am. Birds, 1881, no. 138.—TURNER, Proc. U. S. Nat. Mus., viii, 1885, 238 (Moose Factory, Hudson Bay, June 2).
- [*Vireosylva*] *philadelphica* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 12.
- [*Vireosylva*] *philadelphica* JORDAN, Man. Vertbr. E. U. S., 4th ed., 1884, 75.
- Vireosylva philadelphica* BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 328.
- Vireosylva philadelphicus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 367.
- Vireo philadelphicus* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 335; ed. 1860 (Birds N. Am.), pl. 78, fig. 3; Cat. N. Am. Birds, 1859, no. 244.—WHEATON, Ohio Agric. Rep. for 1860 (1861), 365, 374 (Ohio); in Coues' Birds N. W., 1874, 233 (Columbus, Ohio, Sept. 16).—HAMLIN, Rep. Maine Board Agric., 1865,—(Waterville, Maine).—ALLEN, Mem. Bost. Soc. N. H., i, 1868, 517 (n. Illinois).—COUES, Check List, 1873, no. 124; 2d ed., 1882, no. 173; Birds N. W., 1874, 97 (Pembina, North Dakota, June); Birds Col. Val., 1878, 492.—BREWSTER, Bull. Nutt. Orn. Club, i, 1876, 19 (Cambridge, Massachusetts, Sept. 7); v, 1880, 1-7 (habits and geogr. range); vi, 1881, 56 (Brookline, Massachusetts, Sept.).—FOX, Bull. Nutt. Orn. Club, ii, 1877, 78 (Hollis, New Hampshire, May 26).—MERRIAM, Trans. Conn. Acad., iv, 1877, 33 (Connecticut); Auk, i, 1884, 291 (Fair Haven Light, Lake Ontario, n. New York, May 21).—MEARNS, Bull. Nutt. Orn. Club, iii, 1878, 46 (near West Point, New York, Sept. 24).—TROTTER, Bull. Nutt. Orn. Club, iv, 1879, 235 (near Philadelphia, 2 specs., Sept.).—TOWNSEND (C. W.), Bull. Nutt. Orn. Club, v, 1880, 53 (Magnolia, Massachusetts, 1 spec., Sept. 18, 1879).—PARK, Bull. Nutt. Orn. Club, v, 1880, 239 (near Troy, New York, May 15).—SCOTT, Bull. Nutt. Orn. Club, vi, 1881, 56 (Princeton, New Jersey, Sept. 21).—TURNER (M. H.), Auk, i, 1884, 291 (Essex Co., New York, May 22).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1881, 191 (Retalhuleu and Volcan de Agua, Guatemala; Volcan de Chiriqui, Veragua, etc.).—BATCHELDER, Bull. Nutt. Orn. Club, vii, 1882, 111 (Grand Falls, New Brunswick, May).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 296 (Vera Paz, Guatemala; Fort Carlton, British America).—LAWRENCE (N. T.), Auk, ii, 1885, 272 (Far Rockaway, Long Island, Sept. 25).—SETON, Auk, ii, 1885, 305 (Duck Mt., Manitoba, breeding; descr. nest and eggs); iii, 1886, 325 (near Fort Pelly, w. Manitoba, breeding).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 626.—ZELEDON, Anal. Mus. Nac. Costa Rica, i, 1887, 108 (Cartago, Costa Rica).—COOKE, Bird Migr. Miss. Val., 1888, 234 (Lanesboro, Minnesota, May 18 to 20; Des Moines, Iowa, May 14 to 20; etc.).—RIDGWAY, Orn. Illinois, i, 1889, 183.—EVERMANN, Auk, vi, 1889, 26 (Carroll Co., Indiana; "rare summer resident").—CHERRIE, Auk, vii, 1890, 335 (San José, Costa Rica, Apr. 23); ix, 1892, 23 (San José, after Oct. 20); xix, 1902, 210 (Cold Spring Harbor, Long Island, 1 spec., Sept. 14, 1900).—HITCHCOCK, Auk, vii, 1890, 403 (Rutland Co., Vermont, Sept. 11).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1890, 615 (Manitoba, breeding; descr. nest and eggs).—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 486 (Rio Escondido, Nicaragua, Oct. 21).—NEHRING, Our Native Birds, etc., i, 1893, 288.—SAGE, Auk, xi, 1894, 181 (Portland, Connecticut, Sept. 21); xii, 1895, 311 (Portland, Sept. 17).—

- FAXON, Auk, xii, 1895, 84 (Cambridge, Massachusetts, Sept. 27).—DWIGHT, Auk, xiv, 1897, 259, pl. 2, right-hand fig. (monographic).—BUTLER, Birds Indiana, 1897, 1011 (breeding south to Starke and Carroll counties).—YOUNG, Auk, xv, 1898, 191 (breeding at Lansdown Station, Ontario; descr. nest and eggs).—MCLAIN, Auk, xvi, 1899, 359 (Ohio Co., West Virginia, May 16).—FLEMING, Auk, xviii, 1901, 43 (Parry Sound, n. Ontario; breeding?).—OLIVER, Auk, xix, 1902, 206 (Allegheny Co., Pennsylvania, rare migrant).
- [*Vireo*] *philadelphicus* COUES, Key N. Am. Birds, 1887, 120.
- V[*ireo*] *philadelphicus* NELSON, Bull. Essex Inst., viii, 1876, 102, 152 (n. e. Illinois, May 15 to 25, Sept. 5 to 25, probably breeding 60 miles s. of Chicago).—COUES, Key N. Am. Birds, 2d ed., 1884, 332.—RIDGWAY, Man. N. Am. Birds, 1887, 471.
- Vireo philadelphia* ISHAM, Auk, xix, 1902, 88 (Addison Co., Vermont, Sept. 19, 1900).—WORTHINGTON, Auk, xix, 1902, 89 (Shelter I., New York, Sept. 18).—HOWE, Suppl. Birds R. I., 1903, 20.
- Vireosylva cobanensis* SCLATER, Proc. Zool. Soc. Lond., 1860, 463 (Coban, Guatemala; coll. P. L. Sclater); Ann. and Mag. N. H., 1861, 328 (do.); Cat. Am. Birds, 1862, 44 (Coban and Tactic, Vera Paz).

VIREOSYLVA GILVA GILVA (Vieillot).

WARBLING VIREO.

Adults (sexes alike).—Pileum and hindneck plain light mouse gray or smoke gray, becoming more or less paler (and sometimes more brownish) on forehead; back, scapulars, and lesser wing-coverts similar in color to pileum, but more or less (usually very faintly) tinged with olive-green; lower back, rump, and upper tail-coverts light grayish olive-green, or smoke gray tinged with olive-green; wings (except lesser coverts) and tail deep brownish gray (approaching hair brown) with pale brownish gray edgings, these slightly tinged with olive-green on secondaries and rectrices; inner webs of remiges and rectrices more or less broadly edged with white; a superciliary stripe of dull grayish white or brownish white extending considerably beyond eye; auricular region and sides of neck pale buffy gray or pale buffy brownish; under parts dull white medially, passing into pale buffy olive or dull pale buffy yellowish on sides and flanks, the median under parts sometimes tinged with this color; axillars and under wing-coverts very pale primrose yellow or yellowish white; maxilla horn brownish with paler tomia; mandible pale horn color (pale grayish blue or bluish gray in life ?); iris brown; legs and feet dusky in dried skins, pale grayish blue in life.

Young (first plumage).—Pileum and hindneck plain pale grayish buff; back, scapulars, lesser and middle wing-coverts, and rump light buffy grayish or grayish buff; wings and tail as in adults, but greater wing-coverts indistinctly tipped with dull brownish buff or pale buffy olive; a very indistinct superciliary stripe of whitish or buffy whitish, the lores and sides of head below eyes similar, passing into deeper

grayish buffy on upper part of auricular region; under parts white. the under tail-coverts pale yellowish.

Adult male.—Length (skins), 119–134 (124); wing, 67–74 (70.4); tail, 49–55 (51.9); exposed culmen, 10–11 (10.8); depth of bill at nostrils, 3.5–4 (3.9); tarsus, 17–19 (17.9); middle toe, 10–11 (10.2).^a

Adult female.—Length (skins), 114–125 (120.8); wing, 66–71 (69); tail, 47–53 (50.1); exposed culmen, 10–11 (10.5); depth of bill at nostrils, 3.5–4 (3.9); tarsus, 17–19 (18); middle toe, 10–11 (10.3).^b

Eastern temperate North America; north to Nova Scotia, northern Ontario (Elmsdale; Beaumaris), Manitoba (Selkirk; Red River; Assiniboine River; Duck Mountains), etc.; west to North Dakota (Pembina;^c Fort Rice^c), southeastern Montana (Fort Keogh^c), South Dakota (Cheyenne River;^c Custer County), Kansas, Oklahoma, and Texas (Tascosa^c); breeding from the northern limit of its range to the Gulf States (Florida to Texas). (No extralimital specimens seen, and all extralimital records questionable, as probably pertaining to *V. g. swainsoni*.)

Muscicapa gilva VIEILLOT, Ois. Am. Sept., i, 1807, 65, pl. 34 (New York).—STEPHENS, Shaw's Gen. Zool., x, 1817, 387.

Sylvia gilva VIEILLOT, Nouv. Dict. d'Hist. Nat., xi, 1817, 190; Enc. Méth., ii, 1823, 453.

Vireo gilvus BONAPARTE, Journ. Ac. Nat. Sci. Phila., iv, 1824, 176; Ann. Lyc. N. Y., ii, 1826, 70; Geog. and Comp. List, 1838, 26.—NUTTALL, Man. Orn. U. S. and Can., i, 1832, 309.—AUDUBON, Orn. Biog., ii, 1834, 114, pl. 118; Synopsis, 1839, 161; Birds Am., oct. ed., iv, 1842, 149, pl. 241.—HOY, Proc. Ac. Nat. Sci. Phila., 1853, 309 (Wisconsin); Ann. Rep. Smithsonian. Inst. for 1864 (1865), 437 (Missouri).—WOODHOUSE, in Rep. Sitgreaves' Expl. Zuni and Col., 1853, 76, part (Indian Territory; Texas).—THOMPSON, Nat. Hist. Vermont, 1853, App., p. 22.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858.

^aTwenty-two specimens.

^bThirteen specimens.

Specimens from the Atlantic coast district and Mississippi Valley, respectively, average as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at nos- trils.	Tarsus.	Middle toe.
MALES.						
Ten adult males from Atlantic coast district.....	70.1	51.4	10.5	3.9	18	10.3
Ten adult males from Mississippi Valley.....	71	52.4	10.7	4	18	10
Two adult males from southeastern Montana (Fort Keogh).....	69	51.5	10.2	4	17.2	10.5
FEMALES.						
Five adult females from Atlantic coast district...	69.3	50	10.2	3.7	17.9	10.1
Seven adult females from Mississippi Valley.....	68.6	49.7	10.6	4	18	10.3
One adult female from southeastern Montana (Fort Keogh).....	70	53	10.5	4	18	11

^cBreeding at these localities.

- 335, part; Cat. N. Am. Birds, 1859, no. 245, part.—WILLIS, Ann. Rep. Smithson. Inst. for 1858 (1859), 282 (Nova Scotia).—BLAKISTON, Ibis, 1862, 5 (Forks of Saskatchewan); 1863, 66 (Saskatchewan).—VERRILL, Proc. Bost. Soc. N. H., ix, 1863, 234 (Maine).—(?) DRESSER, Ibis, 1865, 480 (near San Antonio, Texas, breeding).—McILWRAITH, Proc. Essex Inst., v, 1866, 87 (Hamilton, Ontario).—COUES, Check List, 1873, no. 125; 2d ed., 1882, no. 174; Birds N. W., 1874, 97, part.—ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 176, part (e. Kansas); Proc. Bost. Soc. N. H., xvii, 1874, 54 (Dakota).—SNOW, Birds Kansas, 1873, 5.—McCAULEY, Bull. U. S. Geol. Surv. Terr., iii, 1877, 662 (n. Texas).—BREWSTER, Bull. Nutt. Orn. Club, iii, 1878, 115 (descr. young).—BREWER, Bull. Nutt. Orn. Club, iv, 1879, 237 (East Bethel, Vermont, breeding).—MERRIAM, Bull. Nutt. Orn. Club, vi, 1881, 228 (Adirondacks, New York, breeding).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 296, part.—BICKNELL, Auk, i, 1884, 218 (song).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 627, part.—SETON, Auk, iii, 1886, 325 (Red R., Assiniboine R., Redwing, and Duck Mts., w. Manitoba).—COOKE, Bird Migr. Miss. Val., 1888, 234 (localities and dates).—RIDGWAY, Orn. Illinois, i, 1889, 184.—SCOTT, Auk, vii, 1890, 15 (Tarpon Springs, Florida, spring migr.).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1890, 615 (Manitoba; summer resid.).—NEHRING, Our Native Birds, etc., i, 1893, 292, part.—FLEMING, Auk, xviii, 1901, 43 (Elmadale and Beaumaris, n. Ontario).—HOWELL, Auk, xviii, 1901, 343 (Mount Mansfield, Vermont, breeding).
- [*Vireo gilvus*] COUES, Key N. Am. Birds, 1872, 121.
- [*Vireo gilvus*] COUES, Key N. Am. Birds, 2d ed., 1884, 332.—RIDGWAY, Man. N. Am. Birds, 1887, 471.
- [*Vireo gilvus*] DWIGHT, Auk, xiv, 1897, pl. 2, left-hand fig.
- Vireo gilva* SWAINSON, Fauna Bor.-Am., ii, 1831, 235, in text (crit.).—BREWER, Proc. Bost. Soc. N. H., vi, 1857, 109.
- Vireosylva gilva* CASSIN, Proc. Ac. Nat. Sci. Phila., 1851, 153, part.—(?) SCLATER, Proc. Zool. Soc. Lond., 1856, 298 (Cordova, Vera Cruz); Cat. Am. Birds, 1862, 43 (Philadelphia).—BAIRD, Review Am. Birds, 1866, 342 (Fort Simpson, s. Mackenzie; Selkirk Settlement, Manitoba; Missouri R.; Fort Look-out, Nebraska, etc.).—(?) MERRILL, Proc. U. S. Nat. Mus., i, 1878, 125 (Fort Brown, Texas, Oct. 2).—RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880, 174; Nom. N. Am. Birds, 1881, no. 139.
- [*Vireosylva gilva*] JORDAN, Man. Vertebr. E. U. S., 4th ed., 1884, 75.
- Vireosylva gilvus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 368, pl. 17, fig. 3.—BREWER, Proc. Bost. Soc. N. H., xvii, 1875, 440.
- [*Vireo gilvus*] a. *gilvus* COUES, Birds N. W., 1874, 97 (synonymy).
- [*Vireo gilvus swainsoni*] a. *gilvus* COUES, Birds Col. Val., 1878, 501 (synonymy).
- [*Vireosylva gilvus*] var. *gilvus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 360.
- Muscicapa melodia* WILSON, Am. Orn., v, 1812, 85, pl. 42, fig. 2 (Pennsylvania).—STEPHENS, Shaw's Gen. Zool., x, 1817, 382.—BONAPARTE, Journ. Ac. Nat. Sci. Phila., iv, 1824, 176.

VIREOSYLVA GILVA SWAINSONII (Baird).

WESTERN WARBLING VIREO.

Similar to *V. g. gilva*, but smaller, with relatively smaller bill; coloration darker, especially the pileum, which is perceptibly (often distinctly) darker than the back; the latter, together with sides and flanks, usually more strongly olivaceous.

Adult male.—Length (skins), 111–129 (118); wing, 63–73 (67.8); tail, 45–54 (50); exposed culmen, 9–11 (9.9); depth of bill at nostrils, 3–4 (3.5); tarsus, 16–18 (17.5); middle toe, 9–11 (9.9).^a

Adult female.—Length (skins), 109–124 (116.6); wing, 62–70 (66.4); tail, 45–52 (48.5); exposed culmen, 9–11 (9.8); depth of bill at nostrils, 3.5–4 (3.6); tarsus, 16.5–18.5 (17.5); middle toe, 10–11 (10.3).^b

Western temperate North America; north to British Columbia (Vancouver Island and mainland on both sides of Cascade Range), Alberta (Banff), Athabasca (Slave River, 50 miles below Athabasca Lake) and southwestern Mackenzie (Fort Simpson); east to eastern base of Rocky Mountains; breeding south at least to southern border of United States, in New Mexico and Arizona, and to southern extremity of Lower California (Sierra de la Laguna); in winter southward throughout Mexico, to Vera Cruz (Jalapa, etc.) and Oaxaca (Santa Efigenia).

Vireo gilvus (not *Muscicapa gilva* Vieillot) TOWNSEND, Journ. Ac. Nat. Sci. Phila., viii, 1839, 153 (Columbia R.).—WOODHOUSE, in Sitgreaves' Expl. Col. and Zuffi, 1853, 76, part (New Mexico).—HENRY, Proc. Ac. Nat. Sci. Phila., 1855, 313 (New Mexico); 1859, 106 (do.).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 335, part, 927 (Fort Bridger, Wyoming); Cat. N. Am. Birds, 1859, no. 245, part.—XANTUS, Proc. Ac. Nat. Sci. Phila., 1859, 191 (Fort Tejon, California).—HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 55 (California).—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 188 (Fort Steilacoom and Puget Sound, Washington).—BUTCHER, Proc. Ac. Nat. Sci. Phila., 1868, 149 (Laredo, Texas).—BROWN, Ibis, 1868, 421 (Vancouver I.).—COOPER, Am. Nat., iii, 1869, 35 (Rocky Mts.).—ALLEN, Bull. Mus.

^a Fifty specimens.

^b Thirty-one specimens.

Specimens from different geographic areas average, respectively, as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at nos- trils.	Tarsus.	Middle toe.
MALES.						
Ten adult males from California	66.5	49.5	9.6	3.3	17.9	9.5
Ten adult males from San Lucas district, Lower California	66.4	48.1	10.6	3.9	17.7	9.9
Ten adult males from British Columbia	67	49.3	9.9	3.6	17.2	10
Ten adult males from Arizona	67.6	50.4	9.7	3.5	17.2	10
Ten adult males from Colorado, Wyoming, Mon- tana, Utah, etc	71.3	52.8	9.8	3.5	17.6	10.1
Six adult males (<i>V. g. brewsteri</i>) from Chihuahua.	73	52.5	11.2	4	17.5	10.2
FEMALES.						
Ten adult females from California	65.3	47.7	9.9	3.6	17.3	10.3
Three adult females from San Lucas district	64	46.7	10.2	3.8	17.7	10
Four adult females from British Columbia	65.6	47.2	9.5	3.5	17.7	10.7
Ten adult females from Arizona	67.5	49.3	9.7	3.5	17.4	10.1
Four adult females from Colorado, etc	69	50.2	10	3.5	18	10.9
Three adult females (<i>V. g. brewsteri</i>) from Chihua- hua	71.7	50.3	10.8	4	17.5	10.2

- Comp. Zool., iii, 1872, 156, 176, part (Colorado; Utah).—COUES, Birds N. W., 1874, 97, part.—BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 142 (Arizona; crit.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1881, 192, part.—GADOW, Cat. Birds Brit. Mus., viii, 1883, 296, part (Fort Colville, Washington).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 627, part.—ANTHONY, Auk, iii, 1886, 170 (Washington Co., Oregon).—EVERMANN, Auk, iii, 1886, 184 (Ventura Co., California).—LAWRENCE (R. H.), Auk, ix, 1892, 46 (Grays Harbor, Washington).—NEHELING, Our Native Birds, etc., i, 1893, 292, part.—CHAPMAN, Bull. Am. Mus. N. H., x, 1898, 25 (Jalapa, Vera Cruz).—MERRILL, Auk, xv, 1898, 18 (Fort Sherman, Idaho, breeding).—GRINNELL, Pub. ii, Pasadena, Ac. Sci., 1898, 43 (Los Angeles Co., California; summer resid. in mts.).—BARLOW, Condor, iii, 1901, 175 (Sierra Nevada, breeding at 3,700 to 7,500 ft.).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 395.
- Vireosylvia gilva*, CASSIN, Proc. Ac. Nat. Sci. Phila., 1851, 153, part.
- [*Vireosylvia*] *gilva* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 12.
- Vireo swainsonii* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 336, in text (type from Petaluma, Sonoma Co., California; coll. U. S. Nat. Mus.).—MERRIAM, Rep. U. S. Geol. Surv. Terr. for 1872 (1873), 714 (Utah).
- Vireo swainsoni* COUES, Ibis, 1865, 164 (Arizona); Proc. Ac. Nat. Sci. Phila., 1866, 73 (Fort Whipple, Arizona).
- Vireosylvia swainsoni* BAIRD, Review Am. Birds, May, 1866, 343.—AIKEN, Proc. Bost. Soc. N. H., xv, 1872, 198 (Colorado).—RIDGWAY, Proc. U. S. Nat. Mus., i, 1879, 391 (Calaveras Co., California).
- Vireosylvia swainsonii* STEVENSON, Prelim. Rep. U. S. Geol. Surv. for 1870 (1871), 464 (Green R., Wyoming).
- [*Vireo gilvus*.] Var. *swainsonii* COUES, Key N. Am. Birds, 1872, 121.
- Vireo gilvus*, var. *swainsoni* ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 149 (Colorado; crit.).
- Vireo gilvus* . . . var. *swainsoni* COUES, Check List, 1873, no. 125a.—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 43 (Utah), 77 (Fort Garland, Colorado), 105 (White Mts., Arizona); Zool. Exp. W. 100th Merid., 1875, 221 (localities in Utah, Colorado, and Arizona; habits).
- [*Vireo gilvus*] b. *swainsoni* COUES, Birds N. W., 1874, 98.
- Vireosylvia gilva*, var. *swainsoni* COOPER, Orn. Cal., 1870, 116.—RIDGWAY, Bull. Essex Inst., v, 1873, 181 (Colorado).—LAWRENCE, Bull. U. S. Nat. Mus., no. 4, 1876, 17 (Santa Efigenia, Oaxaca; Jan., Apr.).
- [*Vireosylvia gilva*] var. *swainsoni* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 360.
- Vireosylvia gilvus*, var. *swainsoni* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 371.
- Vireo gilvus swainsoni* RIDGWAY, Bull. Essex Inst., vi, Oct., 1874, 171 (Sacramento, California, breeding); vii, 1875, 11 (Carson City, Nevada); Man. N. Am. Birds, 1887, 593.—MINOR, Bull. Nutt. Orn. Club, v, 1880, 229 (Colorado, up to 10,000 ft.).—DREW, Bull. Nutt. Orn. Club, vi, 1881, 89 (San Juan Co., Colorado).—COUES, Check List, 2d ed., 1882, no. 175.—MERRILL, Auk, v, 1888, 360 (Fort Klamath, Oregon).—CHAPMAN, Auk, v, 1888, 399.—MEARNS, Auk, vii, 1890, 260 (San Francisco Mts., Arizona, breeding in aspen belt).—RATHBUN (S. F.), Auk, xix, 1902, 138 (Seattle, Washington, breeding).—BREWSTER, Bull. Mus. Comp. Zool., xli, 1902, 174 (Sierra de la Laguna, etc., Lower California, breeding; crit.).
- Vireo gilvus* [*swainsoni* . . .] SCOTT, Auk, v, 1888, 32 (Santa Catalina Mts., Arizona, breeding down to 3,500 ft.).—ALLEN, Auk, v, 1888, 32 (crit.).
- Vireo gilvus swainsonii* RHOADS, Auk, x, 1893, 21 (crit.).

V[ireo] g[ilvus] swainsoni? COUES, Key N. Am. Birds, 2d ed., 1884, 333.

V[ireo] gilvus swainsoni RIDGWAY, Man. N. Am. Birds, 1887, 472.

[*Vireosylva gilva*] *β. swainsoni* RIDGWAY, Orn. 40th Parallel, 1877, 448 (localities in Nevada and Utah; habits, etc.).

Vireosylva gilva, β. swainsoni RIDGWAY, Field and Forest, ii, May, 1877, 197 (Colorado); Bull. Nutt. Orn. Club, iii, 1878, 66 (central California); Proc. U. S. Nat. Mus., i, 1879, 469 (do.).

Vireosylva gilva swainsoni RIDGWAY, Bull. Essex Inst., vii, Jan., 1875, 18, 19 (Carson and West Humboldt Mts., Nevada); Nom. N. Am. Birds, 1881, no. 139a.—BELDING, Proc. U. S. Nat. Mus., v, 1883, 545 (Miraflores, Lower California).

[*Vireo gilvus swainsoni*] *b. swainsoni* COUES, Birds Col. Val., 1878, 501.

VIREOSYLVA GILVA BREWSTERI, new subspecies.^a

CHIHUAHUA WARBLING VIREO.

Similar to *V. g. swainsoni*, but decidedly larger and with the sides and flanks much less strongly washed with greenish olive.

Adult male.—Length (skins), 115–125 (120.8); wing, 71–75 (73); tail, 49–55 (52.5); exposed culmen, 10.5–12 (11.2); depth of bill at nostrils, 4; tarsus, 17–18 (17.5); middle toe, 9.5–11 (10.2).^b

Adult female.—Length (skins), 117–120 (118.7); wing, 71–72 (71.7); tail, 49–51 (50.3); exposed culmen, 10–11.5 (10.8); depth of bill at nostrils, 4; tarsus, 17–18 (17.5); middle toe, 10–10.5 (10.2).^c

Mountains of Chihuahua (Bravo; Mina Abundancia), north western Mexico.

VIREOSYLVA AMAURONOTA AMAURONOTA (Salvin and Godman).

ORIZABA VIREO.

Adults (sexes alike).—Pileum plain sooty grayish brown (grayish sepia or dark hair brown); hindneck, back, scapulars, rump, upper tail-coverts, and lesser wing-coverts plain olive, darker, more decidedly, and slightly brownish, olive on back, lighter and more greenish olive on rump and upper tail-coverts; wings and tail dusky grayish brown (dark hair brown) with pale olive edgings; a superciliary stripe of dull white, passing into pale brownish gray posteriorly (over auricular region); a narrow dusky loreal streak, most distinct at anterior angle of eye; auricular region olive-brownish, darker on upper portion, especially near posterior angle of eye, paler on lower portion, where passing into pale brownish gray on malar region, the suborbital region still paler, or dull whitish; under parts dull whitish, faintly tinged with pale yellow (except on chin and throat), the sides and flanks tinged with light olive; under tail-coverts, under wing-coverts, and axillars very pale sulphur or primrose yellow; inner webs of remiges

^aType, no. 21811, collection of William Brewster; adult male, Bravo, Chihuahua, July 24, 1888; M. Abbott Frazar.

^bSix specimens.

^cThree specimens.

edged with white, sometimes tinged with pale yellow; maxilla dark brownish with paler tomia; mandible much paler (pale bluish gray in life?); iris, brown; legs and feet, brownish or dusky in dried skins (grayish blue or bluish gray in life?).

Adult male.—Length (skins), 117–120 (118.5); wing, 70–71 (70.5); tail, 48.5–50 (49.2); exposed culmen, 11; tarsus, 16.5–17 (16.7); middle toe, 10.^a

Adult female.—Length (skins), 111–120 (115.5); wing, 65–67 (66); tail, 46–47 (46.5); exposed culmen, 10.5–11 (10.7); tarsus, 17–17.5 (17.2); middle toe, 10.^a

Highlands of Vera Cruz (Orizaba, Jalapa, etc.), southeastern Mexico.

[*Vireosylva*] *gilva* var. *josephæ* (not *Vireo josephæ* Sclater) BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 360, footnote, part (Orizaba, Vera Cruz).

Vireo amauronotus SALVIN and GODMAN, Biol. Centr.-Am., Aves., i, sig. 25, Dec., 1881, 193 (Orizaba, Vera Cruz, Mexico; coll. U. S. Nat. Mus.).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 298.—CHAPMAN, Bull. Am. Mus. N. H., x, 1898, 25 (Jalapa, Vera Cruz; crit.)

VIREOSYLVA AMAURONOTA STRENUA (Nelson).

CHIAPAS VIREO.

Similar to *V. a. amauronota*, but darker, the pileum deep sooty brown or sepia, the back, etc., more brownish olive.

Adult female.—Length (skin), 112; wing, 67; tail, 46.5; exposed culmen, 11; tarsus, 18; middle toe, 10.5.^b

Highlands of Chiapas (Tumbala), southern Mexico.

Vireo amauronotus strenuus NELSON, Auk, xvii, July, 1900, 268 (Tumbala, Chiapas; coll. U. S. Nat. Mus.).

VIREOSYLVA JOSEPHÆ COSTARICENSIS, new subspecies. ^c

BROWN-CAPPED VIREO.

Similar to *V. j. josephæ*^d but pileum paler sooty brown, yellow of under parts deeper, wing shorter, and tail longer; also resembling *V. amauronota*, but color of pileum browner and extending over hindneck, back, etc., oily olive-green, superciliary stripe more sharply defined (especially the posterior portion), and under parts of body wholly light yellow.

Adults (sexes alike).—Pileum and hindneck deep sooty brown or sepia; back, scapulars, rump, upper tail-coverts, and lesser wing-

^aTwo specimens.

^bOne specimen (the type).

^cType, no. 41269; coll. U. S. Nat. Mus., San José, Costa Rica; J. Carmiol.

^dSee footnote on page 134.

coverts, plain brownish olive-green, the rump lighter and more decidedly olive-green, the back browner; wings and tail dusky with light olive-green edgings, the outer webs of greater wing-coverts and tertials mostly grayish brown (hair brown); a very distinct superciliary stripe of dull white, becoming pale brownish gray at posterior extremity; below this a dusky brown loreal or anteorbital triangular spot and a rather broad brown postocular streak; lower portion of postocular region pale brownish gray; suborbital and malar regions, chin, throat, and upper portion of chest grayish white, sometimes faintly tinged with pale yellow; rest of under parts, including axillars and under wing-coverts, pale yellow (pale lemon to between sulphur and straw yellow), the sides and flanks faintly tinged with olivaceous; bill brown, the mandible paler; iris brown; legs and feet grayish dusky (grayish blue or bluish gray in life?).

Young.—Pileum, hindneck, back, scapulars, rump, upper tail-coverts, and smaller wing-coverts, plain pale wood brown or fawn-color; remiges and rectrices as in adults; greater wing-coverts as in adults, but more olive-greenish and indistinctly tipped with pale yellowish olive; superciliary stripe and under parts white, passing into very pale olive yellow on sides, flanks, and under tail-coverts.

Adult male.—Length (skins), 121–124 (122.5); wing, 62–68 (65); tail, 46–51 (48.5); exposed culmen, 10.5–11 (10.7); tarsus, 17–17.5 (17.2); middle toe, 9.5–10 (9.7).^a

Adult female.—Length (skin), 124; wing, 67; tail, 49; exposed culmen, 10.5; tarsus, 16.5; middle toe, 10.^b

Highlands of Costa Rica (San José, Dota, Barranca, Rancho Redondo, etc.)

Vireo josephæ (not of Sclater, 1859) SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1881, 194, part (Barranca, Rancho Redondo, and Dota Mts., Costa Rica).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 297, part (Costa Rica).—ZELEDON, Anal. Mus. Nac. Costa Rica, i, 1887, 108 (Rancho Redondo de San José, Costa Rica).

Vireosylvia josephæ BAIRD, Review Am. Birds, May, 1866, 344, part (Barranca and Dota, Costa Rica).—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 96 (Barranca, Rancho Redondo, and Dota Mts., Costa Rica).—FRANTZIUS, Journ. für Orn., 1869, 295 (Costa Rica).—BOUCARD, Proc. Zool. Soc. Lond., 1878, 53 (Naranjo, Costa Rica).

[*Vireosylvia*] *josephæ* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 12, part (Costa Rica).

[*Vireosylvia gilva*] var. *josephæ* RIDGWAY, Am. Journ. Sci., iv, Dec., 1872, 456, in text, part (Costa Rica).

[*Vireosylvia*] *gilva* var. *josephæ* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 360, footnote, part (Costa Rica).

^a Two specimens.

^b One specimen.

VIREOSYLVA JOSEPHÆ CHIRIQUENSIS Bangs.

CHIRIQUI VIREO.

Similar to *V. j. costaricensis* but much grayer above, the pileum and hindneck dark hair brown^a instead of deep sooty brown, the back, etc., grayish olive or dull grayish olive-green instead of bright brownish olive-green, superciliary stripe more extensively grayish posteriorly, brownish postocular streak grayer and less distinct, and yellow of under parts decidedly paler.

Adult male.—Length (skins), 110–116 (111.6); wing, 63–67 (64.9); tail, 46–49 (47.4); exposed culmen, 10–11 (10.4); tarsus, 17–18 (17.3); middle toe, 10–10.5 (10.1).^b

Adult female.—Length (skin), 110; wing, 63.5; tail, 45.5; exposed culmen, 11; tarsus, 17; middle toe, 10.^c

Chiriqui (Boquete, etc.), and southward along Caribbean coast slope of Colombia to province of Santa Marta (Paramo de Macotama).

This form agrees very closely in coloration of the upper parts with *V. antaureonota*, the color of the pileum being sometimes quite identical but usually grayer (instead of browner, as in the Costa Rican form), but the back is a lighter olive-greenish color. The coloration of the under parts is conspicuously different, however, only the chin and throat being whitish, the rest of the under surface entirely pale yellow, as in the Costa Rican form.

Vireo josephæ (not of Sclater, 1859) SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1881, 194, part (Volcan de Chiriqui).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 297, part ("Panama").—BANGS, Proc. Biol. Soc. Wash., xiii, 1899, 105 (Paramo de Macotama, prov. Santa Marta, Colombia, 11,000 ft. alt.); Proc. New Engl. Zool. Club, iii, 1902, 58 (Boquete and Caribbean slope of Volcan de Chiriqui, 4,000 to 7,000 ft.).—ALLEN, Bull. Am. Mus. N. H., xiii, 1900, 172 (Valparaiso, etc., prov. Santa Marta, Colombia).

[*Vireosylva*] *josephæ* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 12, part.

Vireosylva josephæ chiriquensis BANGS, Proc. New Engl. Zool. Club, iv, Mar. 24. 1903, 9 (Boquete, Chiriqui, 4,000 ft. alt.; coll. E. A. and O. Bangs).

Genus LANIVIREO Baird.

Lanivireo BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 329; Review Am. Birds, May, 1866, 326, 345. (Type, *Vireo flavifrons* Vieillot.)

Laniovireo (emendation) GRAY, Hand-list Birds, i, 1869, 381.

Medium-sized Vireonidæ with tenth primary rudimentary and concealed or else not more than one-third as long as ninth, narrow and pointed (as in *Vireosylva*), the ninth primary longer than fourth (as in *Vireosylva*), but with depth of bill at frontal antiæ equal to much more

^a The color of the pileum is visibly darker along the lateral edge, sometimes forming a rather distinct marginal line.

^b Five specimens.

^c One specimen.

than half the distance from nostril to tip of maxilla, the latter measurement decidedly less than length of gonys; if the tenth primary is obvious the ninth longer than the sixth; wing with two conspicuous white bands, and tertials broadly edged with white.

Bill stout, with culmen strongly curved and tip of maxilla distinctly uncinate; exposed culmen decidedly more than half as long as tarsus; depth of bill at frontal antiæ about equal to its width at same point, and very much more than half (about two-thirds) the distance from nostril to tip of maxilla; maxillary tomium faintly concave, distinctly notched subterminally; mandibular tomium faintly convex, with a distinct but minute subterminal notch, the tip of the mandible forming a minute ascending point; gonys nearly or quite equal to distance from nostril to tip of maxilla. Nostril roundish or broadly ovate, in lower anterior portion of nasal fossæ, posteriorly in contact with bristly antrorse feathers of frontal antiæ, the long bristly points of which extend beyond it. Rictal bristles few, inconspicuous (apparently only two in number). Wing long and pointed; tenth primary rudimentary and entirely concealed or else very small, narrow and pointed, extending but little if any beyond primary coverts and only about one-fourth as long as ninth primary; ninth primary longer than fifth (sometimes nearly equal to seventh), the ninth, eighth and seventh, or eighth, seventh, and sixth primaries longest; wing-tip longer than tarsus. Tail a little more than two-thirds as long as wing, even, the retrices narrow. Tarsus much longer than middle toe with claw (one-fourth as long as wing or longer), distinctly scutellate anteriorly; outer toe conspicuously longer than inner, the latter (without claw) shorter than hallux (without claw), its claw not reaching to base of middle claw.

Coloration.—Above yellowish olive-green, becoming gray on rump and upper tail-coverts; or olive-green with gray pileum and hindneck, or entirely gray or olive; beneath yellow anteriorly and white posteriorly, or white with light olive-green sides and flanks; wings with two conspicuous white bands, and tertials broadly edged with white.

Range.—Temperate North America and southward to highlands of Guatemala (to Colombia in winter). (Three species.)

KEY TO THE SPECIES AND SUBSPECIES OF LANIVIREO.

- a. No spurious primary (tenth primary entirely concealed).
 - b. Pileum, hindneck, and back olive-green; throat and chest bright yellow. (Eastern North America; south in winter to Cuba and Colombia.)
Lanivireo flavifrons, adults (p. 163)
 - oo. Pileum, hindneck, and back brownish gray; throat and chest pale yellow.
Lanivireo flavifrons, young (p. 164)
- aa. A more or less distinct spurious primary.
 - b. Sides and flanks striped with olive, olive-green, or olive-gray, and light yellowish (Adults.)

- c. Spurious primary minute (one-half as long as longest primary coverts); hind-neck and sides of neck olive-green, like back, etc.; upper tail-coverts gray; chest tinged with yellow. (Highlands of Guatemala.)

Lanivireo propinquus (p. 166)

- cc. Spurious primary well developed (equal to or longer than longest primary coverts); hindneck and sides of neck gray (or at least not olive-green); upper tail-coverts olive or olive-green, like back, or else the back and rump also gray; chest not tinged with yellow. (*Lanivireo solitarius*.)

- d. Back, scapulars, and rump decidedly olive or olive-green; wing and tail edgings olive or olive-green.

- e. Larger (wing of adult male averaging at least 73.5), and brighter colored, with broader and yellower wing-bands, brighter yellow on sides of flanks, and gray of head darker and clearer.

- f. Smaller (adult male averaging wing 73.5, tail 50.8, exposed culmen 10.1, tarsus 18.6); back usually uniform olive-green. (Eastern North America, breeding from mountains of Pennsylvania, New England States, etc., northward; south in winter to Cuba and through eastern Mexico to Guatemala.) . . . *Lanivireo solitarius solitarius*, adults (p. 167)

- ff. Larger (adult male averaging wing 80.3, tail 55, exposed culmen 11.7, tarsus 19.1); back usually partly (often extensively) gray. (Southern Alleghenies, from western Maryland to South Carolina; lowlands of South Atlantic States in winter.)

Lanivireo solitarius alticola, adults (p. 169)

- ee. Smaller (wing of adult male averaging not more than 72) and duller colored, with narrower and more whitish wing-bands, paler yellow on sides and flanks, and gray of head paler and duller (decidedly brown in immature birds).

- f. Larger, with decidedly smaller bill (adult male averaging wing 72.3, tail 52.3, exposed culmen 10.2); sides and flanks with less of yellow than olive. (Western United States and British Columbia; western Mexico in winter.) *Lanivireo solitarius cassinii*, adults (p. 172)

- ff. Smaller, with decidedly larger bill (adult male averaging wing 69.6, tail 51.1, exposed culmen 11.2); sides and flanks with more of yellow than olive. (Southern portion of Lower California.)

Lanivireo solitarius lucasianus, adults (p. 175)

- dd. Back, scapulars, and rump gray, the latter slightly tinged with olive-green; wing and tail edgings pale gray and white. (Rocky Mountain district of United States; Mexico in winter.)

Lanivireo solitarius plumbeus, adults (p. 170)

- bb. Sides and flanks white, more or less tinged with pale yellow. (Young.)^a

LANIVIREO FLAVIFRONS (Vieillot).

YELLOW-THROATED VIREO.

Adult male.—Pileum, hindneck, and back plain yellowish olive; sides of neck, auricular and malar regions, and sides of chest plain yellowish olive-green; superciliary stripe (scarcely, if at all, passing behind eye), suborbital spot, anterior portion of malar region, chin, throat, chest, and breast canary yellow; abdomen, anal region, and under tail-coverts white; flanks pale grayish; axillars and under wing-coverts white,

^aOwing to lack of sufficient material I am unable to give distinctive characters for the young of the several forms.

more or less tinged with yellow; lesser wing-coverts, scapulars, lower back, rump, and upper tail-coverts plain slate-gray; wings (except lesser coverts) and tail black; middle and greater wing-coverts (except innermost) broadly tipped with white, forming two conspicuous bands; tertials broadly edged with white (this sometimes tinged with yellow); outer webs of secondaries, primaries, and rectrices narrowly edged with pale gray (becoming white on outermost rectrices), their inner webs broadly edged with white; maxilla grayish black, with paler tomia; mandible bluish gray (in life); iris brown; legs and feet light grayish blue (in life); length (skins), 118-134 (125.7); wing, 74-80 (77.1); tail, 47.5-52 (49.2); exposed culmen, 10.5-12 (11.5); tarsus, 18-20 (19.3); middle toe, 11-12 (11.6).^a

Adult female.—Similar to the adult male and not always distinguishable, but usually with the yellow slightly paler and duller; length (skins), 119-135 (125.6); wing, 72-78 (75); tail, 47-52 (49.1); exposed culmen, 11-12 (11.8); tarsus, 19-20 (19.8); middle toe, 11-12 (11.5).^b

Young.—Pileum, hindneck, back, scapulars, lesser wing-coverts, rump, and upper tail-coverts, plain soft brownish gray; supraloral line, orbital ring, chin, throat, and chest very pale yellow (primrose), shading into deeper yellow (naples yellow) on malar and suborbital regions and lower portion of auricular region; rest of under parts white, faintly tinged on sides with pale gray; remiges, rectrices, and larger wing-coverts as in adults, but edgings of secondaries pale yellow.

Eastern United States and southern British Provinces; north to Maine (Oxford and Kennebec counties), Vermont (East Bethel), northern New York (Adirondack Mountains), southern Ontario (Hamilton, etc.), and Manitoba (Red River; Winnipeg; Moosejaw); west to edge of Great Plains (Minnesota to Texas); breeding south to Gulf coast, from northern Florida (Wacissa River; Suwanee River) to southern Texas; in winter from southern Florida and Cuba southward through eastern Mexico and Central America to Colombia (Pirico; Minca and Onaca, province of Santa Marta, etc.).

^aThirteen specimens.

^bTen specimens.

Examples from west of the Allegheny Mountains are almost invariably smaller than those from the eastern side of that range, average measurements being as follows. I can discover no color differences:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Seven adult males from Atlantic coast district.....	78.6	50.6	11.6	19.9	11.7
Six adult males from Mississippi Valley and Texas.....	75.3	49.2	11.5	18.6	11.5
FEMALES.					
Six adult females from Atlantic coast district	75.3	49.3	11.8	20	11.4
Four adult females from Mississippi Valley and Texas.....	74.5	48.8	11.9	19.7	11.7

- Vireo flavifrons* VIEILLOT, Ois. Am. Sept., i, 1807, 85, pl. 54 (United States).—BONAPARTE, Journ. Ac. Nat. Sci. Phila., iv, 1824, 174; Ann. Lyc. N. Y., ii, 1826, 70.—NUTTALL, Man. Orn. U. S. and Can., i, 1832, 302.—AUDUBON, Orn. Biog., ii, 1834, 119, pl. 119; Synopsis, 1839, 160; Birds Am., oct. ed., iv, 1842, 141, pl. 238.—BONAPARTE, Consp. Av., i, 1850, 330.—HOY, Proc. Ac. Nat. Sci. Phila., 1853, 309 (Wisconsin).—WOODHOUSE, in Rep. Sitgreaves' Expl. Zuffi and Col., 1853, 75 (Texas; Indian Territory; "New Mexico").—THOMPSON, Nat. Hist. Vermont, 1853, 77.—GUNDLACH, Journ. für Orn., 1855, 468 (Cuba); 1861, 404 (do.); 1872, 403 (do).—SCLATER, Proc. Zool. Soc. Lond., 1857, 227 (Santecomapam, Vera Cruz); 1860, 251 (Orizaba, Vera Cruz); Cat. Am. Birds, 1862, 42 (Philadelphia).—MAXIMILIAN, Journ. für Orn., 1858, 188.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 341; Cat. N. Am. Birds, 1859, no. 252.—SCLATER and SALVIN, Ibis, 1859, 12 (Guatemala).—CABANIS, Journ. für Orn., 1860, 405 (Costa Rica).—BREWER, Proc. Bost. Soc. N. H., vii, 1860, 307 (Cuba); Bull. Nutt. Orn. Club, iv, 1879, 237 (East Bethel, Vermont, common).—LAWRENCE, Ann. Lyc. N. Y., vii, 1861, 323 (Panama R. R.).—VERRILL, Proc. Essex Inst., iii, 1862, 157 (Oxford Co., Maine).—HOY, Ann. Rep. Smithson. Inst. for 1864 (1865), 437 (Missouri).—HAMLIN, Rep. Maine Board Agric., 1865, — (Waterville, Maine).—MCLILWRAITH, Proc. Essex Inst., v, 1866, 87 (Hamilton, Ontario).—WYATT, Ibis, 1871, 324 (Pirico, Colombia).—TRIPPE, Proc. Essex Inst., vi, 1871, 117 (Minnesota).—COUES, Check List, 1873, no. 126; 2d ed., 1882, no. 176; Birds N. W., 1874, 98; Birds Col. Val., 1878, 493.—SNOW, Birds Kansas, 1873, 5 (e. Kansas, breeding); 3d ed., 1875, 6 (do.).—LAWRENCE, Bull. U. S. Nat. Mus. no. 4, 1876, 17 (Santa Efigenia, Oaxaca; Gineeta Mts., Chiapas).—BREWSTER, Bull. Nutt. Orn. Club, iii, 1878, 115 (descr. first plumage).—LOOMIS, Bull. Nutt. Orn. Club, iv, 1879, 213 (Chester Co., South Carolina, breeding).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1881, 194 (Coban, Choctum, Lanquin, San Gerónimo, Dueñas, Volcan de Fuego, and San José, Guatemala; Volcan de Irazú, etc., Costa Rica; Paraiso Station, Panama R. R., etc.).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 298.—BICKNELL, Auk, i, 1884, 322 (song).—RIDGWAY, Proc. U. S. Nat. Mus., viii, 1885, 565 (Cozumal I.); Orn. Illinois, i, 1889, 186.—CORY, Auk, iii, 1886, 189; Birds W. I., 1889, 76; Cat. W. I. Birds, 1892, 116 (New Providence, Bahamas; Cuba).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 628).—SETON, Auk, iii, 1886, 325 (Red R., w. Manitoba).—ZELEDON, Anal. Mus. Nac. Costa Rica, i, 1887, 108 (San José and Tárcoles, Costa Rica).—COOKE, Bird Migr. Miss. Val., 1888, 235 (Manitoba; Gainesville, Texas, etc.).—SCOTT, Auk, vii, 1890, 15 (Tarpon Springs, Florida, Apr. 26; Punta Rassa, Apr. 5; Key West, Apr. 1 and Oct. 5).—CHERRIE, Auk, vii, 1890, 335 (San José, Costa Rica, Oct. 25 to Feb. 9); ix, 1892, 23 (Jan José, after Oct. 3).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1890, 616 (Winnipeg and Moosejaw, Manitoba, rare summer resid.).—ATTWATER, Auk, ix, 1892, 340 (San Antonio, Texas, breeding).—WAYNE, Auk, x, 1893, 338 (Suwanee R., n. w. Florida, breeding); xii, 1895, 365 (Wacissa R., n. w. Florida, breeding).—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 486 (Rio Escondido, Nicaragua, Oct. 22 to Feb. 8).—NEHRLING, Our Native Birds, etc., i, 1893, 295, pl. 16.—MCLILWRAITH, Birds Ontario, 1894, 351 (s. Ontario, breeding).—ALLEN, Bull. Am. Mus. N. H., xiii, 1900, 173 (Onaca, prov. Santa Marta, Colombia, Dec. 28); Auk, xvii, 1900, 366 (Minca, prov. Santa Marta, Feb. 13).—BANGS, Auk, xviii, 1901, 368 (Divala, Chiriqui, Nov. 7).
- [*Vireo flavifrons* COUES, Key N. Am. Birds, 1872, 121.—CORY, List Birds W. I., 1885, 10.
- V[*ireo*] *flavifrons* COUES, Key N. Am. Birds, 2d ed., 1884, 333.—RIDGWAY, Man. N. Am. Birds, 1887, 472.

Vireo (Lanivireo) flavifrons BAIRD, Rep. Pacific R. R. Surv., ix, 1858, p. "xxxxv" (=xxxv).

Vireosylvia flavifrons BAIRD, Review Am. Birds, May, 1866, 346.—SALVIN, Proc. Zool. Soc. Lond., 1870, 184 (Volcan de Chiriqui and Calovevora, Veragua).—BOUCARD, Proc. Zool. Soc. Lond., 1878, 53 (San José, Costa Rica, Jan., Mar.).—SALVIN and GODMAN, Ibis, 1880, 118 (Minca, prov. Santa Marta, Colombia, Feb.).

[*Vireosylvia*] *flavifrons* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 12.

V[ireosylvia] flavifrons JORDAN, Man. Vertebr. E. U. S., 4th ed., 1884, 76.

Lanivireo flavifrons LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 96 (San José, Costa Rica).—FRANTZIUS, Journ. für Orn., 1869, 295 (Costa Rica).—ALLEN, Bull. Mus. Comp. Zool., ii, 1871, 270 (s. Florida, resident).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 379, pl. 17, fig. 5.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 140.—MERRIAM, Bull. Nutt. Orn. Club, vi, 1881, 228 (Adirondacks, New York, breeding).—NEHRLING, Bull. Nutt. Orn. Club, vii, 1882, 11 (s. e. Texas, breeding).—BROWN (N. C.), Bull. Nutt. Orn. Club, vii, 1882, 37 (Boerne, Kendall Co., Texas, 1 pair, Mar. 25).—BAILEY (H. B.), Bull. Nutt. Orn. Club, viii, 1883, 38 (St. Simons I., Georgia, breeding).—GOSS, Auk, i, 1884, 124-126 (Neosho Falls, Kansas; nesting habits).—NUTTING, Proc. U. S. Nat. Mus., vi, 1884, 392 (Ometepe, Nicaragua).

Muscicapa sylvicola (not of Bartram) WILSON, Am. Orn., i, 1808, 117, pl. 7, fig. 3.—BONAPARTE, Journ. Ac. Nat. Sci. Phila., iv, 1824, 173.

Vireo ochroleucus (not *Muscicapa ochroleuca* Gmelin^a) COUES, Birds Col. Val., 1878, 494, in text.

LANIVIREO PROPINQUUS (Baird).

VERA PAZ VIREO.

Similar to *L. solitarius solitarius*, but with very minute outermost primary (much shorter than longest primary coverts), whole hindneck, sides of neck, back, scapulars, and rump olive-green, anterior portion of sides more extensively pale yellow and olive-green, and chest and foreneck washed with pale yellow.

Adult.—Pileum plain slate-gray; hindneck, back, scapulars, lesser wing-coverts, and rump uniform olive-green; upper tail-coverts slate-gray; wings (except lesser coverts) and tail dull slate color or dusky with pale olive-green edgings, the middle and greater wing-coverts broadly tipped with white, forming two conspicuous wing-bands, the outer webs of tertials broadly edged with yellowish white, the inner webs of remiges and rectrices broadly edged with pure white; supra-

^a*Muscicapa ochroleuca* Gmelin, Syst. Nat., i, 1788, 946 (New York; based on *Golden-throat Flycatcher* Pennant, Arctic. Zool., ii, 389; *Golden-throated Flycatcher* Latham, Gen. Synopsis Birds, Suppl., 173).—Latham, Index Orn., ii, 1790, 489.—Stephens, Shaw's Gen. Zool., x, 1817, 376.—Vieillot, Nouv. Dict. d'Hist. Nat., xxi, 1818, 471; Enc. Méth., ii, 1823, 814.

Sylvia ochroleuca Vieillot, Nouv. Dict. d'Hist. Nat., xi, 1817, 187; Enc. Méth. ii, 1823, 446.

M[niotilta] ochroleuca Gray, Gen. Birds, i, 1848, 196.

The original description indicates a bird very different from the present species, and answers fairly well for *Icteria virens*.

loral stripe and orbital ring (the latter interrupted at anterior angle of eye by a dusky loral mark) dull white; malar region, chin, throat, and median portion of chest and breast dull white faintly tinged with pale yellow, the last two more strongly so; abdomen, anal region, and under tail-coverts white; sides and flanks mixed pale olive-green and sulphur yellow, this encroaching on sides of breast; under wing-coverts pale sulphur or primrose yellow; maxilla blackish with paler tomia; mandible grayish (grayish blue or bluish gray in life?); legs and feet grayish dusky (grayish blue in life?); length (skin), 127; wing, 77; tail, 52; exposed culmen, 11; tarsus, 18; middle toe, 12.^a

Highlands of Guatemala (Coban, Vera Paz).

This bird, of which only one specimen is known, is intermediate in wing-structure and coloration between *L. solitarius* and *L. flavifrons*, and may be a hybrid between these two species.

Vireo solitarius (not *Muscicapa solitaria* Wilson) SALVIN and SCLATER, Ibis, 1860, 31, part (Coban, Vera Paz, Guatemala).

Vireosylva propinqua BAIRD, Review Am. Birds, May, 1866, 348 (Coban, Vera Paz, Guatemala; coll. U. S. Nat. Mus.).

[*Lanivireo solitarius*] var. *propinquus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 373.

[*Vireo*] *propinquus* SALVIN and GODMAN, Biol. Centr.-Am., Aves., i, Dec., 1881, 197, in text.—RIDGWAY, Man. N. Am. Birds, 1887, 472.

LANIVIREO SOLITARIUS SOLITARIUS (Wilson).

SOLITARY VIREO. -

Adult male.^b—Pileum, hindneck, sides of neck, auricular region, suborbital region and malar region slate-color or deep slate-gray, deepening into slate-blackish on posterior portion of lores; anterior and upper portions of lores and broad orbital ring (interrupted anteriorly by blackish loral mark) white; back, scapulars, rump, and upper tail-coverts, plain olive-green, the first usually more or less intermixed with slate-gray; wings and tail slate-blackish with light olive-green edgings, the outermost rectrix with outer web white; middle and greater wing-coverts broadly tipped with yellowish white or pale sulphur yellow, forming two distinct bands; tertials with outer webs broadly edged with yellowish white or pale sulphur yellow; chin, throat, and median under parts of body white; sides and flanks mixed sulphur yellow and olive-greenish, in broad, ill-defined stripes; under tail-coverts pale sulphur yellow, yellowish white, or white faintly tinged with yellow; axillars and under wing-coverts pale sulphur yellow, the carpo-metacarpal coverts dusky gray margined with white; inner webs of remiges and rectrices edged with white; maxilla black; mandible grayish (pale grayish blue in life), becoming blackish ter-

^aOne specimen, the type.

^bIn adult birds there is, apparently, no seasonal difference in plumage.

minally; iris deep brown; legs and feet dusky in dried skins (grayish blue in life; length (skins), 123-129 (126.2); wing, 72-76 (74.6); tail, 48-55 (52.7); exposed culmen, 9.5-10 (9.9); tarsus, 17.5-19 (18.2); middle toe, 11-11.5 (11.1).^a

Adult female.—Very similar to the adult male and not always distinguishable, but usually slightly duller in color; length (skins), 118-131 (123.6); wing, 71-75 (73.5); tail, 47-54 (50.8); exposed culmen, 9.5-11 (10.1); tarsus, 18-19 (18.6); middle toe, 10-12 (11).^a

Young (in first autumn and winter).—Similar to adults but duller in color, with gray of head much tinged with brown, olive-green of back, etc.; browner, and white of under parts less pure.

Eastern North America; north to Prince Edward Island, Keewatin (Oxford House, etc.), Athabasca (Knee Lake, Chippewyan; Slave River), and southern Mackenzie (Great Slave Lake); west to border of the Great Plains; breeding southward to Connecticut (Norfolk; West Simsbury), Pennsylvania (Elk County, etc.), and North Dakota; wintering in the Gulf States (Florida to Texas), Cuba, and southward through eastern Mexico to Guatemala (Coban, etc.).

Vireo flavifrons, part, VIEILLOT, Ois. Am. Sept., i, 1807, 85 (supposed female).

Muscicapa solitaria WILSON, Am. Orn., ii, 1810, 143, pl. 17, fig. 6 (near Philadelphia, Pennsylvania).—STEPHENS, Shaw's Gen. Zool., x, 1817, 349.—BONAPARTE, Journ. Ac. Nat. Sci. Phila., iv, 1824, 174.

Vireo solitarius VIEILLOT, Nouv. Dict. d'Hist. Nat., xxxvi, 1819, 103.—BONAPARTE, Journ. Ac. Nat. Sci. Phila., iv, 1824, 175; Ann. Lyc. N. Y., ii, 1826, 70; Geog. and Comp. List, 1838, 26.—AUDUBON, Orn. Biog., i, 1831, 147, pl. 28; Synopsis, 1839, 160; Birds Am., oct. ed., iv, 1842, 144, pl. 239.—NUTTALL, Man. Orn. U. S. and Can., i, 1832, 305.—THOMPSON, Nat. Hist. Vermont, 1853, 78.—HOY, Proc. Ac. Nat. Sci. Phila., 1853, 309 (Wisconsin).—GUNDLACH and CABANIS, Journ. für Orn., 1855, 468 (Cuba).—GUNDLACH, Journ. für Orn., 1872, 403 (do.).—(?) SCLATER, Proc. Zool. Soc. Lond., 1856, 236 (Mexico); (?) 1859, 363 (Jalapa, Vera Cruz), 375 (Talea, Oaxaca).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 340, part; Cat. N. Am. Birds, 1859, no. 250, part.—WILLIS, Ann. Rep. Smithson. Inst. for 1858 (1859), 282 (Nova Scotia).—SALVIN and SCLATER, Ibis, 1860, 31, part (Coban, Guatemala).—BREWER, Proc. Bost. Soc. N. H., vii, 1860, 307 (Cuba).—SCLATER, Cat. Am. Birds, 1862, 42 (Coban).—VERRILL, Proc. Essex Inst., iii, 1862, 148 (Oxford Co., Maine).—BOARDMAN, Proc. Bost. Soc. N. H., ix, 1862, 126 (Calais, Maine).—DRESSER, Ibis, 1865, 481 (San Antonio, Texas).—McILWRAITH, Proc. Essex Inst., v, 1866, 87 (Hamilton, Ontario).—TRIPPE, Proc. Essex Inst., vi, 1871, 117 (Minnesota, breeding).—COUES, Check List, 1873, 127, part; Birds N. W., 1874, 99, part; Birds Col. Val., 1878, 505, part.—BREWSTER, Bull. Nutt. Orn. Club, iii, 1878, 116 (descr. first plumage).—SENNETT, Bull. U. S. Geol. and Geog. Surv. Terr., v, 1879, 389 (Lomita, Texas, Apr. 30).—BROWN (N. C.), Bull. Nutt. Orn. Club, iv, 1879, 7 (Coosada, Alabama, winter).—SALVIN and GODMAN, Biol. Centr.-Am. Aves, i, 1881, 196, part.—GADOW, Cat. Birds Brit. Mus., viii, 1883, 298, part (excl. syn. *propinqua* Baird).—BICKNELL, Auk, i, 1884, 323 (song).—CORY, Auk, iii, 1886, 190; Birds W. I., 1889, 77; Cat. W. I. Birds, 1892, 116 (Cuba).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 629.—SETON, Auk, iii, 1886,

^aTen specimens.

- 325 (Turtle Mt., Duck Mt., Big Plain, and along Red R., w. Manitoba).—COOKE, Bird Migr. Miss. Val., 1888, 235 (dates, etc.).—RIDGWAY, Orn. Illinois, i, 1889, 187.—SCOTT, Auk, vii, 1890, 15 (Tarpon Springs, Florida, winter: Key West, 1 spec., Feb. 3).—THOMPSON, Auk, xvii, 1890, 616 (Manitoba, rare summer resid.).—RALPH and BAGG, Auk, vii, 1890, 231 (Jocs Lake, Herkimer Co., New York, breeding).—LOOMIS, Auk, viii, 1891, 169 (Chester Co., South Carolina, migr.; crit.).—DWIGHT, Auk, ix, 1892, 138 (North Mt. and Wopsononock Mt., Pennsylvania, breeding); x, 1893, 13 (Prince Edward I., breeding).—NEHRING, Our Native Birds, etc., i, 1893, 299.—SAGE, Auk, x, 1893, 371 (Norfolk, Connecticut, breeding).—RICHMOND, Proc. U. S. Nat. Mus., xviii, 1896, 631 (Alta Mira, Tamaulipas).—BAILY, Auk, xiii, 1896, 295 (n. Elk Co., Pennsylvania, breeding).—CASE, Auk, xiii, 1896, 343 (West Simsbury, Connecticut, breeding).—HOWELL, Auk, xviii, 1901, 343 (Mount Mansfield, Vermont, breeding; habits).—PREBLE, North Am. Fauna, no. 22, 1902, 125 (Oxford House, Keewatin; Knee Lake, Athabasca).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 396.
- [*Vireo solitarius* BONAPARTE, Consp. Av., i, 1850, 330.—GRAY, Hand-list, i, 1869, 381, no. 5758.—COUES, Key N. Am. Birds, 1872, 122, part.—CORY, List Birds W. I., 1885, 10.
- V[*ireo solitarius* CABANIS Mus. Hein., i, 1850, 63 (Mexico).—NELSON, Bull. Essex Inst., viii, 1876, 103 (n. e. Illinois, May 5 to 25, and last of Sept. to first of Oct.).—COUES, Key N. Am. Birds, 2d ed., 1884, 333.—RIDGWAY, Man. N. Am. Birds, 1887, 473.
- (?) *Lanius solitarius* LICHTENSTEIN, Preis-Verz. Mex. Vög., 1830, 2.
- V[*ireo (Lanivireo) solitarius* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, p. "xxxv" (=xxxv).—GUNDLACH, Journ. für Orn., 1861, 324 (Cuba).—ALLEN, Proc. Essex Inst., iv, 1864, 67.
- Vireosylva solitaria* BAIRD, Review Am. Birds, May, 1866, 347, part.—SUMICHAEST, Mem. Bost. Soc. N. H., i, 1869, 548 (Vera Cruz, winter).
- [*Vireosylva solitaria* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 12.
- V[*ireosylva solitaria* JORDAN, Man. Vertebr. E. U. S., 4th ed., 1884, 76.
- Lanivireo solitarius* ALLEN, Am. Nat., iii, 1869, 507, 579 (Massachusetts); Bull. Mus. Comp. Zool., ii, 1871, 270 (e. Florida, winter).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 373, pl. 17, fig. 8.—LAWRENCE, Bull. U. S. Nat. Mus., no. 4, 1876, 18 (Santa Efigenia and Tehuantepec City, Oaxaca; Gineta Mts., Chiapas).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 141.—MERRIAM, Bull. Nutt. Orn. Club, vi, 1881, 228 (Adirondacks, New York, breeding).
- [*Lanivireo solitarius*] var. *solitarius* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 373.

LANIVIREO SOLITARIUS ALTICOLA (Brewster).

MOUNTAIN VIREO.

Similar to *L. s. solitarius*, but larger and averaging slightly darker in color, with the back more often mixed with gray, sometimes with more of gray than olive-green.

Young.^a—Similar to adults, but back, scapulars, rump, and upper tail-coverts brownish gray, tinged with greenish olive; gray of head and hindneck browner, that of auricular and suborbital regions much paler; sides and flanks white, tinged with pale yellow.

^a I have not seen the young of *V. s. solitarius*.

Adult male.—Length (skins), 121–137 (131.8); wing, 78–83.5 (80.3); tail, 52–57 (55); exposed culmen, 11–12 (11.7); tarsus, 18–20 (19.1); middle toe, 12–13 (12.1).^a

Adult female.—Length (skins), 120–137 (129.4); wing, 76–82 (78.8); tail, 51–58 (55.7); exposed culmen, 11–12 (11.6); tarsus, 18.5–20 (19.1); middle toe, 11–13 (12.1).^a

Southern Allegheny Mountains, from western Maryland (Finzel) to South Carolina (Cæsars Head, Pickens County), western North Carolina, and eastern Tennessee (Roane and Blount counties); in winter, lowlands of southern Atlantic and eastern Gulf States, from South Carolina (near Charleston) to Florida (Suwanee River, Kissimmee River, Caloosahatchee River, etc.).

Vireo solitarius alticola BREWSTER, Auk, iii, Jan., 1886, 111 (Highlands, Macon Co., North Carolina; coll. W. Brewster), 410 (Charleston, South Carolina, Feb. 20).—LANGDON, Auk, iv, 1887, 131 (Pine Mt., 1,500 ft., and Defeat Mt., 4,000 ft., e. Tennessee).—FOX, Auk, iv, 1887, 164 (Roane Co., Tennessee).—RIDGWAY, Man. N. Am. Birds, 1887, 593.—LOOMIS, Auk, vii, 1890, 126 (Pickens Co., South Carolina; crit.; measurements, etc.); viii, 1891, 329, Cæsars Head, South Carolina; crit.; measurements).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 2d ed., 1895, no. 629c.—CHAPMAN, Auk, v, 1888, 275 (Gainesville, Florida, winter), 324 (Aiken, South Carolina, Nov. 11), 399.—RIVES, Auk, vi, 1889, 52 (White Top Mt., Virginia).—JEFFRIES, Auk, vi, 1889, 122 (Highlands, w. North Carolina, May).—SCOTT, Auk, ix, 1892, 213 (Caloosahatchee R., Florida, winter).—WAYNE, Auk, x, 1893, 338 (Suwanee R., Florida, Feb. 23).—NEHRING, Our Native Birds, etc., i, 1893, 301.

V[ireo] solitarius alticola RIDGWAY, Man. N. Am. Birds, 1887, 473.

Vireo solitarius (not *Muscicapa solitaria* Wilson) FOX, Auk, iii, 1886, 317 (Roane Co., Tennessee).

LANIVIREO SOLITARIUS PLUMBEUS (Coues).

PLUMBEOUS VIREO.

Similar to *L. s. alticola*, but back and scapulars entirely gray; rump and upper tail-coverts gray, tinged with olive-green, and sides and flanks much more faintly washed with yellow.

Adults (sexes alike).—Above plain slate-gray, the rump and upper tail-coverts more or less strongly tinged with olive-green; wings and tail slate-black, with pale olive-gray edgings, these becoming white on lateral rectrices, the outermost of which has the outer web white; middle and greater wing-coverts broadly tipped with white, forming two conspicuous bands across wing; auricular, suborbital, and malar regions paler gray than upper parts; broad supraloral stripe and orbital ring white, the latter interrupted anteriorly by a grayish dusky spot at anterior angle of eye, this passing into gray on lower anterior portion of lores; chin, throat, and rest of under parts (except sides

^a Ten specimens.

and flanks) white; sides and flanks broadly and indistinctly striped with pale grayish olive and very pale sulphur yellow; inner webs of remiges and rectrices broadly edged with white; maxilla black; mandible blackish at tip, basally grayish (pale bluish gray or grayish blue in life); iris brown; legs and feet dusky (grayish blue in life).

Young.—Similar to adults, but gray of upper parts more brownish (mouse gray), the sides and flanks white.

Adult male.—Length (skins), 125–138 (130.4); wing, 77–82 (79.8); tail, 56–61 (58.2); exposed culmen, 11–12 (11.1); tarsus, 19–20 (19.8); middle toe, 10–12 (11.2).^a

Adult female.—Length (skins), 124–134 (129.2); wing, 77–87 (80.8); tail, 56–60 (57.8); exposed culmen, 11–12 (11.2); tarsus, 19–20 (19.7); middle toe, 11–12.5 (11.7).^a

Rocky Mountain district of United States and mountains of Mexico; breeding from southern Wyoming (Black Hills, Laramie Peak, etc.), northern Utah (Wasatch Mountains), and northeastern Nevada (East Humboldt Mountains), southward to Arizona (Mogollon Mountains, Santa Catalina range, etc.), Chihuahua, western Texas (mountains west of Pecos River), and Vera Cruz (Las Vegas, 8,000 feet altitude); south in winter to southern Mexico, in States of Oaxaca, Guerrero (Tlalixtaquilla), and Colima (plains of Colima). Accidental in New York (Madison County, one specimen, September 24, 1893)?

Vireo plumbeus COUES, Proc. Ac. Nat. Sci. Phila., 1866, 74 (Fort Whipple, Arizona; coll. U. S. Nat. Mus.); Birds Col. Val., 1878, 515.—ALLEN, Am. Nat., vi, 1872, 345 (Colorado).—MERRIAM, Rep. U. S. Geol. Surv. Terr. for 1872 (1873), 714 (Utah).—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 272 (plains of Colima).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1881, 198 (Oaxaca).

Vireosylva plumbea BAIRD, Review Am. Birds, May, 1866, 349 (Laramie Peak, Wyoming; Fort Whipple, Arizona; plains of Colima, s. w. Mexico).—COOPER, Orn. Cal., 1870, 119 (Rocky Mts.).—AIKEN, Proc. Bost. Soc. N. H., xv, 1872, 198 (Colorado).

[*Vireosylva*] *plumbea* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 12.

Lanivireo plumbeus RIDGWAY, Field and Forest, iii, May, 1877, 197 (Colorado); Orn. 40th Parallel, 1877, 451 (Ruby and e. Humboldt Mts., Nevada, breeding).

Lanivireo plumbea BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 17, fig. 10.

Vireo solitarius, var. *plumbeus* ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 149, 176 (Colorado).—COUES, Birds N. W., 1874, 100.

Vireo solitarius . . . var. *plumbeus* COUES, Check List, 1873, no. 127a.—YARROW and HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 12 (Wasatch Mts. and Meadow Creek, Utah).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 43 (Utah), 77 (Fort Garland, Colorado, habits, nest and eggs, etc.), 105 (Neutria, New Mexico, July 19, and Apache, Arizona, Sept. 3); Zool. Exp. W. 100th Merid., 1875, 224 (Wasatch Mts., Utah, etc.; habits, etc.).

Lanivireo solitaria var. *plumbea* RIDGWAY, Bull. Essex Inst., v, Nov., 1873, 170, in text, 172 (Wasatch Mts., near Salt Lake City; breeding).

^a Ten specimens.

- Lanivireo solitaria* . . . var. *plumbea* RIDGWAY, Bull. Essex Inst., v, Nov., 1873, 181 (Colorado).
- Lanivireo solitarius* var. *plumbeus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 377; iii, 1874, 507 (El Paso Co., Colorado).
- Lanivireo solitaria plumbea* RIDGWAY, Bull. Essex Inst., vii, Jan., 1875, 33 (Parleys Park, Wasatch Mts., Utah; breeding).
- Lanivireo solitarius plumbeus* RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 174, 216; Nom. N. Am. Birds, 1881, no. 141b.
- Vireo solitarius plumbeus* RIDGWAY, Bull. Essex Inst., vii, Jan., 1875, 20 (e. Humboldt Mts., Nevada).—COUES, Check List, 2d ed., 1882, no. 179.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 629b.—SCOTT, Auk, v, 1888, 32 (Santa Catalina Mts., s. Arizona; breeding above 10,000 ft.).—ALLEN, Auk, v, 1888, 32 (crit.).—MEARNS, Auk, vii, 1890, 260 (Mogollon Mts., Arizona; habits song, etc.).—(?) MILLER, Auk, xi, 1894, 79 (Madison Co., New York, 1 spec., Sept. 24, 1893).—MITCHELL, Auk, xv, 1898, 310 (San Miguel Co., New Mexico; breeding up to 9,000 ft.).—CHAPMAN, Bull. Am. Mus. N. H., x, 1898, 40 (Las Vegas, Vera Cruz, 8,000 ft., breeding).—CARY, Auk, xviii, 1901, 237 (Black Hills, Wyoming).—OBERHOLSER, Auk, xix, 1902, 301 (Mountains west of Pecos R., w. Texas).—GRINNELL, Pacific Coast Avifauna, no. 3, 1902, 62 (Tejon Mts., California, Aug.).
- [*Vireo solitarius*.] Subsp. *β. Vireo plumbeus* GADOW, Cat Birds Brit. Mus., viii, 1883, 299.
- V[*ireo*] s[*olitarius*] *plumbeus* COUES, Key N. Am. Birds, 2d ed., 1884, 334.—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 397.
- I[*ireo*] *solitarius plumbeus* RIDGWAY, Man. N. Am. Birds, 1887, 474.

LANIVIREO SOLITARIUS CASSINII (Xantus).

CASSIN'S VIREO.

Similar to *L. s. solitarius*, but slightly smaller and much duller in color.

Adult male.—Pileum, hindneck, sides of neck, auricular region, suborbital region, and malar region brownish gray (mouse gray, or between this and slate-gray); back and scapulars grayish olive-green, usually more or less mixed or washed with gray, passing into more decided and uniform olive-green on rump and upper tail-coverts; wings and tail blackish slate with light olive-green edgings, these more yellowish on rectrices, of which the outermost has the outer web white; middle and greater wing-coverts tipped with pale olive-yellow or yellowish white, producing two distinct bands (much narrower and less continuous than in *L. s. solitarius*); tertials broadly edged with pale olive-yellowish or dull yellowish white; broad supraloral stripe and orbital ring white, the latter interrupted at anterior angle of eye by a dusky loral streak; under parts white, passing on sides and flanks into pale sulphur or primrose yellow and pale olive, in broad, ill-defined stripes; under tail-coverts pale primrose yellow or yellowish white; inner webs of remiges and rectrices broadly edged with white, this in fresh plumage extending round tips of the latter; maxilla grayish black; mandible grayish (pale bluish gray in life) with blackish tip; iris brown; legs and feet dusky (grayish blue in life); length (skins).

114-131 (123.2); wing, 70-77 (72.3); tail, 49-56 (52.3); exposed culmen, 10-11 (10.2); tarsus, 18-20 (18.9); middle toe, 11-12 (11.2).^a

Adult female.—Similar to the adult male but duller in color, with gray of head and neck browner and white of under parts less pure; length (skins), 117-127 (121.7); wing, 70-75 (72.1); tail, 49.5-54 (52); exposed culmen, 9-11 (9.6); tarsus, 18-20 (19.1); middle toe, 11-12 (11.2).^b

Young (in first autumn and winter).—Very different from the corresponding stage of *L. s. solitarius*. Pileum, hindneck and sides of head and neck varying from olivaceous hair brown to grayish olive, not very, if at all, different from color of back; orbital ring and supraloral mark and white of under parts strongly tinged with brownish buff.

Young (first plumage).—Wings and tail as in adults; rest of upper parts brownish gray; under parts entirely dull white, the flanks and under tail-coverts faintly tinged with yellowish.

Pacific coast district of the United States and British Columbia (both sides of Cascade Range); breeding from Vancouver Island and eastern side of Cascade Range in British Columbia (Clinton; Tobacco Plains) southward to southern California (mountains of Los Angeles County) and eastward to Idaho (Fort Sherman; Fort Lapwai), western Wyoming (Fort Bridger) ?, and eastern Oregon (Fort Klamath); during migration east to Utah (Wasatch Mountains), New Mexico (upper Pecos River), etc., and southward through Arizona and western Mexico to States of Jalisco (Talpa, San Sebastian), Morelos (Tetela del Volcan), Guanajuato, and Oaxaca (Talea).

^a Nineteen specimens.

^b Nine specimens.

Specimens from different localities average, respectively, as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Six adult males from Arizona (April to June)	72.7	52.3	10.1	19.2	11
Two adult males from northern Lower California and southern California	75	53.5	10.2	19.2	11.7
Three adult males from northern California and Oregon...	73	51.3	10	18.3	11
Two adult males from Washington (Seattle)	75.5	54.5	10.2	19	.....
Five adult males from Vancouver Island	71.8	51.1	10.3	18.5	11.3
One adult male from Fort Bridger, Wyo. (May 16)	76	54.5	10.5	19	11
FEMALES.					
Five adult females from Arizona (April, May)	72.7	52.1	9.3	18.9	11.5
One adult female from southern California (Los Angeles) ..	70	51.5	9	20	11
Two adult females from northern California and Oregon ..	70.5	50.5	10.5	19.2	11.7
One adult female from eastern British Columbia (Clinton) ..	74	54	10	19	11

- Vireo solitarius* (not *Muscicapa solitaria* Wilson) ORNITHOLOGICAL COMMITTEE, Journ. Ac. Nat. Sci. Phila., vii, 1837, 193 (Columbia R.).—GAMBEL, Journ. Ac. Nat. Sci. Phila., i, 1847, 44 (California); Proc. Ac. Nat. Sci. Phila., 1847, 159 (do.).—HEERMANN, Journ. Ac. Nat. Sci. Phila., ii, 1852, 269 (California); Rep. Pacific R. R. Surv., x, pt. iv, no. 2, 1859, 55 (California).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 340, part (Fort Steilacoom, Washington), 927 (Fort Bridger, Wyoming).—XANTUS, Proc. Ac. Nat. Sci. Phila., 1859, 191 (Fort Tejon, California).—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 189 (Fort Steilacoom, etc., Washington; song).—BROWN, Ibis, 1868, 421 (Vancouver I.).—COOPER, Am. Nat., iii, 1869, 479 (Fort Mojave, Arizona, May 14).—COUES, Check List, 1873, no. 127, part; Birds N. W., 1874, 99, part; Birds Col. Val., 1878, 505, part).—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 272 (Mazatlan, Sinaloa, Apr.).—RIDGWAY, Bull. Essex Inst., vii, 1875, 22 (upper Humboldt Valley, Nevada, Sept.).—HENSHAW, List Birds Arizona, 1875, 157; Zool. Exp. W. 100th Merid., 1875 222 (Mount Graham, Arizona, Sept. 20 to 25); Rep. Orn. Spec. Wheeler's Surv., 1876, 235 (Tejon Mts., s. California, Aug. 17).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1881, 194, part.
- [*Vireo*] *solitarius* COUES, Key N. Am. Birds, 1872, 122, part.
- Vireosylva solitaria* BAIRD, Review Am. Birds, May, 1866, 347, part (Fort Bridger, Utah, May 16; Fort Steilacoom, Washington; Napa Valley, Yreka, and Fort Tejon, California).—COOPER, Orn. Cal., 1870, 117, excl. syn. part.
- [*Lanivireo solitaria*] var. *solitaria* RIDGWAY, Bull. Essex Inst., v, Nov., 1873, 170, in text (Wasatch Mts., Utah, autumn).
- Lanivireo solitarius* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, iii, Jan., 1874, 507 (Emigrant Gap, California, 5,500 ft.).—RIDGWAY, Bull. Essex Inst., vii, Jan., 1875, 19 (West Humboldt Mts., Nevada, Sept.); Orn. 40th Parallel, 1877, 450 (West Humboldt Mts. and head of Humboldt Valley, Nevada, Sept.); Field and Forest, iii, 1877, 197 (Colorado); Bull. Nutt. Orn. Club, iii, 1878, 65 (Big Trees, Calaveras Co., California, breeding).
- Vireo cassinii* XANTUS, Proc. Ac. Nat. Sci. Phila., 1858, 117 (Fort Tejon, California; coll. U. S. Nat. Mus.); 1859, 191 (do.).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 340; ed. 1860 (Birds N. Am.), atlas, pl. 78, fig. 1; Cat. N. Am. Birds, 1859, no. 251.
- Vireo* (*Lanivireo*) *cassinii* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, p. "xxxxv" (=xxxv).
- Vireo cassinii* SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1881, 197 ("Mexico").
- Lanivireo cassinii* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, Jan., 1874, pl. 17, fig. 9.—RIDGWAY, Orn. 40th Parallel, 1877, 449 (West Humboldt Mts., Nevada, Sept.); Bull. Nutt. Orn. Club, iii, 1878, 65 (Calaveras Co., California).
- Lanivireo solitarius* var. *cassinii* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 376.
- Vireo solitarius* . . . var. *cassinii* HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 105 (s. of Apache and Gila R., Arizona, Sept.); 1876, 235 (Tejon Mts., s. California, Aug. 17).
- Vireo solitarius* . . . var. (?) *cassinii* HENSHAW, Zool. Exp. W. 100th Merid., 1875 223 (localities in Arizona, Aug. 30 to Sept. 25).
- Lanivireo solitaria* . . . var. *cassinii* RIDGWAY, Bull. Essex Inst., vii, Jan., 1875 36 (Nevada).
- Lanivireo solitarius* β . *cassinii* BELDING and RIDGWAY, Proc. U. S. Nat. Mus., i Mar. 21, 1879, 410 (central California; habits; song).
- Lanivireo solitarius cassinii* RIDGWAY, Bull. Essex Inst., vii, Jan., 1875, 19 (West Humboldt Mts.); Nom. N. Am. Birds, 1881, no. 141a.

Vireo solitarius cassini COUES, Birds Col. Val., 1878, 514; Check List, 2d ed., 1882, no. 178.—MEARNS, Bull. Nutt. Orn. Club, iv, 1879, 164 (Fort Klamath, Oregon).—BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 142 (s. Arizona, Apr., May; crit.; measurements, etc.).—HENSHAW, Auk, ii, 1885, 332 (upper Pecos R., New Mexico, Sept. 2 and after).—ANTHONY, Auk, iii, 1886, 170 (Washington Co., Oregon; breeding, descr. song).—MERRIAM, N. Am. Fauna, no. 5, 1901, 105 (Fort Lapwai, Idaho, breeding).—BARLOW, Condor, ii, 1900, 133 (near Almaden, Santa Clara Co., California, breeding); iii, 1901, 119 (descr. nest and eggs), 175 (Sierra Nevada, breeding; descr. nest).—MAILLIARD, Condor, iii, 1901, 125 (Paicines, San Benito Co., California, summer resident).

V[ireo] s[olitarius] cassini COUES, Key N. Am. Birds, 2d ed., 1884, 333.

Vireo solitarius cassinii AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 629.—MORCOM, Bull. Ridgw. Orn. Club, no. 2, 1887, 51 (Cohuilla Valley, s. California, Apr.).—SCOTT, Auk, v, 1888, 32 (Santa Catalina Mts., Arizona, Apr. 18 to May 15 and Sept. 10 to Oct. 7).—ALLEN, Auk, v, 1888, 32 (crit.).—MERRILL, Auk, v, 1888, 360 (Fort Klamath, Oregon, breeding); xv, 1898, 18 (Fort Sherman, Idaho, breeding).—GRINNELL (J.), Pub. ii, Pasadena Ac. Sci., 1898, 43 (Los Angeles Co., California, breeding in mountains).—RATHBUN (S. F.), Auk, xix, 1902, 138 (Seattle, Washington, breeding).

V[ireo] solitarius cassinii RIDGWAY, Man. N. Am. Birds, 1887, 473.

V[ireo] s[olitarius] cassinii BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 396, fig. 491.

[*Vireo solitarius*.] Sulsp. α . *Vireo cassini* GADOW, Cat. Birds Brit. Mus., viii, 1885, 299.

LANIVIREO SOLITARIUS LUCASANUS (Brewster).

SAINT LUCAS VIREO.

Similar to *L. s. cassinii*, but smaller, with decidedly larger bill; sides and flanks with much more of yellow and less of olive.

Adult male.—Length (skins), 117–124 (120.7); wing, 67–72.5 (69.6); tail, 48–53.5 (51.1); exposed culmen, 11–12 (11.2); tarsus, 18–20 (19); middle toe, 11–12 (11.4).^a

Adult female.—Length (skins), 117–127 (122); wing, 69–71 (69.8); tail, 51–55 (52.7); exposed culmen, 11–11.5 (11.2); tarsus, 18.5–19 (18.7); middle toe, 11–12 (11.7).^b

Cape San Lucas district of Lower California (San José del Rancho; Triunfo; Rayitas; Lazaro Mountain; Sierra San Gertrude); resident.

Vireosylviu solitaria (not *Muscicapa solitaria* Wilson) BAIRD, Review Am. Birds, 1886, 347, part (Sierra San Gertrude, Lower California).

[*Vireo*] *solitarius* COUES, Key N. Am. Birds, 1872, 121, 122, part.

Vireo solitarius COUES, Check List, 1873, no. 127, part.

Lanivireo solitarius cassini (not *Vireo cassinii* Xantus) RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880, 174, part; Nom. N. Am. Birds, 1881, no. 141a, part.—BELDING, Proc. U. S. Nat. Mus., v, 1883, 546 (Miraflores, Lower California, breeding).

Vireo solitarius cassini COUES, Check List, 2d ed., 1882, no. 178, part.

^a Ten specimens.

^b Three specimens.

Vireo solitarius cassinii BRYANT, Proc. Calif. Acad. Sci., 2d ser., ii, 1889, 307 (San José del Cabo, breeding; Miraflores).

Vireo solitarius lucasanus BREWSTER, Descr. Seven Supposed New N. Am. Birds, Feb. 17, 1891, 147; Auk, viii, April, 1891, 147 (San José del Rancho, Lower California; coll. W. Brewster); Bull. Mus. Comp. Zool, xli, 1902, 174 (San José del Cabo, San José del Rancho, Miraflores, etc., breeding; descr. nest and eggs).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 2d ed., 1895, no. 629d.—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 607.

[*Vireo solitarius*] var. *lucasana* DUBOIS, Synop. Avium, fasc. vii, 1901, 472.

Genus VIREO Vieillot.

Vireo VIEILLOT, Ois. Am. Sept., i, 1807, 83. (Type, *V. musicus* Vieillot, = *Muscicapula noveboracensis* Gmelin.)

Vireonella BAIRD, Review Am. Birds, May, 1866, 326, 369. (Type, *Vireo gundlachii* Lembeye.)

Small Vireonidæ with the tenth primary well developed, more than one-third (frequently one-half) as long as ninth, the latter shorter than fourth, sometimes shorter than the first or (rarely) even shorter than secondaries; wing tip shorter than commissure, the latter shorter than tarsus.

Bill variable in relative size but never with exposed culmen more than two-thirds as long as tarsus nor more than distance from nostril to posterior angle of eye, sometimes less than half as long as tarsus and less than distance from nostril to anterior angle of eye; culmen nearly straight or very slightly curved for most of its length but strongly decurved terminally, the tip of maxilla more or less distinctly though minutely uncinatè; gonys nearly or quite as long as distance from nostril to tip of maxilla, distinctly convex, ascending terminally, the tip of the maxilla produced into a fine point;^a maxillary tomium straight or very nearly so, distinctly notched subterminally; the straight or nearly straight mandibular tomium with a corresponding but much smaller (sometimes^b obsolete) notch; depth of bill at frontal antiæ about equal to, sometimes slightly less than, its width at same point. Nostril exposed, at least mostly so, longitudinal, broadly oval or ovate, in lower anterior portion of nasal fosse, posteriorly usually in contact with bristly feathers of the frontal antiæ, sometimes partly covered by the latter. Rictal bristles few, only two to three well developed; feathers of frontal antiæ and chin with well-developed bristles at tips, the former extending beyond nostrils. Wing moderate, more or less pointed; tenth primary decidedly less to slightly more than half as long as ninth, usually broad with rounded tip, rarely narrower and more pointed; ninth primary always shorter than fifth, sometimes shorter than first; eighth to fourth (usually seventh, sixth, and fifth) longest; wing-tip much shorter than tarsus, sometimes shorter than exposed culmen. Tail shorter than wing (the

^a This very indistinct in *V. bellii*.

^b In *V. bellii*.

difference usually equal to more than length of exposed culmen,^a sometimes^b equal to length of tarsus), even, slightly rounded, or slightly double-rounded, the rectrices rather narrow (decidedly so in some species). Tarsus decidedly less to much more than one-third as long as wing, much longer than middle toe with claw, distinctly scutellate anteriorly; outer toe distinctly longer than inner, the latter (without claw) shorter than hallux (without claw), its claw not reaching to base of middle claw.

Coloration.—Above plain olive, olive-green, brown, or gray, the head sometimes different in color from back (black in one species); wing with or without whitish bands and edgings; beneath whitish, yellowish, or yellow, one species with sides cinnamomeous.

Range.—Temperate North America, Mexico, Central America (south to Costa Rica), and Greater Antilles (Bahamas, Cuba, Grand Cayman, Porto Rico, and Jamaica^c).

KEY TO THE SPECIES AND SUBSPECIES OF VIREO.

- a. Middle and greater wing-coverts very abruptly or sharply tipped with yellow or whitish, forming two rather broad and very distinct bands across wing.
- b. Lores entirely white, in abrupt and conspicuous contrast with color of forehead.
 - c. Pileum and back brown; auricular region, sides of neck, and sides cinnamon. (Cozumel Island, Yucatan.).....*Vireo bairdi*, adults (p. 180)
 - cc. Pileum gray or black; back olive-green; auricular region gray or black, like pileum; sides olive-green. (Kansas to northern Mexico.)
Vireo atricapillus, adults (p. 181)
- bb. Lores not entirely white.
 - c. Lores distinctly different in color from forehead, at least the upper portion being yellow or whitish, abruptly contrasted with color of forehead.
 - d. Under parts bicolored, the median portion white, in distinct contrast with olive-yellow of sides and flanks. (*Vireo noveboracensis*.)
 - e. Supraloral stripe and eyelids bright yellow; throat and chest white or grayish white.
 - f. Brighter colored, the upper parts distinctly olive-green, the sides and flanks bright olive-yellow or sulphur yellow. (Eastern United States; south in winter through eastern Mexico to Yucatan, to Bahamas, Cuba, etc.).....*Vireo noveboracensis noveboracensis*, adults (p. 183)
 - ff. Duller or paler in color, the upper parts more or less grayish, the sides and flanks pale olive-yellow.
 - g. Larger (adult male averaging, wing 57.4 or more, tail 49 or more, exposed culmen 10 or more).
 - h. Intermediate in measurements and coloration between *V. n. noveboracensis* and *V. n. maynardi*; adult male averaging, wing 58.7, tail 49, exposed culmen 10, tarsus 20.5; adult female, wing 58.8, tail 46.7, exposed culmen 10.8, tarsus 20.3. (Bermudas.)
Vireo noveboracensis bermudianus, adults (p. 185)

^a Nearly as long as tail (the difference much less than length of exposed culmen) in *V. gundlachii* and *V. hypochryseus*.

^b In *V. carmioli*.

^c Also Old Providence Island, Caribbean Sea.

- hh. Paler and grayer; adult male averaging, wing 61.6, tail 50.2, exposed culmen 11.4, tarsus 19.8; adult female, wing 59, tail 46.7, exposed culmen 11, tarsus 19.2. (Southern Florida, including Keys.)..... *Vireo noveboracensis maynardi*, adults (p. 186)
- gg. Smaller; adult male averaging wing 57.4, tail 47.4, exposed culmen 8.9, tarsus 19.9; adult female, wing 56.1, tail 46.3, exposed culmen 9.7, tarsus 19.8. (Southern Texas, and north-central Mexico.)
Vireo noveboracensis micrus, adults (p. 186)
- cc. Supraloral stripe and eyelids yellowish white; throat and chest very pale gray, contrasting with white of abdomen. *Vireo noveboracensis*, young.^a
- dd. Under parts unicolored, or at least not distinctly bicolored, never pure white medially.
- e. Supraloral stripe terminating on anterior portion of upper eyelid, the orbital ring interrupted above by a dusky spot on middle of upper eyelid.
- f. Under parts distinctly yellowish or decidedly tinged with yellow.
- g. Supraloral stripe deep lemon or saffron yellow, conspicuously deeper and brighter than dingy yellow of under parts. (Southeastern Mexico.)..... *Vireo perquisitor*, adults (p. 187)
- gg. Supraloral stripe pale yellow, little if any deeper or brighter than color of under parts.
- h. Wing-bands very narrow; dusky supraorbital spot large and conspicuous. (Cuba.) *Vireo gundlachii*, adults (p. 188)
- hh. Wing-bands broad; dusky supraorbital spot small, inconspicuous.
- i. Larger (wing 58-66, tail 44-54). (*Vireo crassirostris*.)
- j. Coloration duller and grayer, the under parts less yellow. (Bahamas.) ... *Vireo crassirostris crassirostris*, adults (p. 189)
- jj. Coloration brighter, more olive-green above, more decidedly yellow beneath.
- k. Coloration deeper; slightly larger (wing 58-66); tail more even.
- l. Upper parts olive-green; wing-bands narrower. (Bahamas.) *Vireo crassirostris flavescens*, adults (p. 191)
- ll. Upper parts olive-brown; wing-bands broader. (Islands of Grand Cayman and Cayman Brac, south of Cuba.)
Vireo crassirostris alleni, adults (p. 192)
- kk. Coloration paler; slightly smaller (wing 61); tail more rounded. (Island of Old Providence, Caribbean Sea.)
Vireo crassirostris approximans, adults (p. 192)
- ii. Smaller (wing 51-57, tail 40-47). (Southern Mexico to Nicaragua.) *Vireo ochraceus*, adults (p. 193)
- ff. Under parts not distinctly, if at all, yellowish, but dull whitish or very pale olive-buffy, or buffy olive.
- g. Smaller (wing 55, tail 46) with larger bill (exposed culmen 12); upper parts olive-gray; under parts entirely dull white. (Western Nicaragua.) *Vireo pallens*, adults (p. 194)
- gg. Larger (wing 59-70, tail 47-55), with smaller bill (exposed culmen 8.5-11); upper parts greenish olive to grayish olive; under parts more or less strongly shaded with pale olive or buffy. (*Vireo huttoni*.)
- h. Darker, with upper parts distinctly olive and under parts strongly washed with buffy olive.

^a I have not enough material to enable me to make a satisfactory key to the young of the several subspecies.

- i. Smaller (adult male averaging less than wing 61, tail 49); young dull olive-whitish beneath.
 - j. Paler (California.)..... *Vireo huttoni huttoni* (p. 195)
 - jj. Darker (Coast district of Oregon and Washington to Vancouver Island.)..... *Vireo huttoni obscurus* (p. 196)
- ii. Larger (adult male averaging wing 67.3, tail 51.9; adult female, wing 65.4, tail 51.2); young strongly buffy beneath. (Southern portion of Mexican plateau to Guatemala.)
 - Vireo huttoni mexicanus* (p. 196)
- hh. Paler, with upper parts olive-gray and under parts less strongly washed with olive or without olive tinge.
 - i. Under parts tinged with yellowish, the chest faintly shaded with olive-buff; rump and upper tail-coverts more decidedly olive-green; adult male averaging wing 68.8, tarsus 18.4; adult female, wing 67.7, tarsus 18.5. (Southern Arizona and northern Mexico.)..... *Vireo huttoni stephensi* (p. 197)
 - ii. Under parts without yellowish tinge, the chest not shaded with olive-buff; rump and upper tail-coverts less strongly olive-green; adult male averaging wing 64.8, tarsus 19.1; adult female, wing 62.9, tarsus 19. (Cape district of Lower California.) *Vireo huttoni cognatus* (p. 199)
- ee. Supraloral stripe continued over eye to decidedly beyond posterior angle of the latter. (Costa Rica.)..... *Vireo carmioli* (p. 199)
- cc. Lores not distinctly different in color from forehead. (Jamaica.)
 - Vireo modestus* (p. 200)
- aa. Middle and greater wing-coverts not abruptly or sharply tipped with yellow or whitish.
 - b. Under parts and superciliary stripe deep yellow, upper parts bright olive-green. (*Vireo hypochryseus*.)
 - c. Smaller and brighter colored, the under parts bright lemon yellow; adult male averaging wing 64.5, tail 56, exposed culmen 12.5, tarsus 18.3; adult female, wing 61.6, tail 55, exposed culmen 12, tarsus 18.1. (Western Mexico.)..... *Vireo hypochryseus hypochryseus* (p. 201)
 - cc. Large and duller colored, the under parts olive-yellow; adult male averaging wing 66.6, tail 59.7, exposed culmen 13.4, tarsus 20.2; adult female, wing 64.7, tail 59.2, exposed culmen 13.3, tarsus 20. (Tres Marias Islands, western Mexico.) *Vireo hypochryseus sordidus* (p. 202)
- bb. Under parts and superciliary stripe (if present) not yellow; upper parts not olive-green.
 - c. Larger (wing 61-67, tail 55-61); upper parts clear gray; lores entirely whitish. (Southern California to western Texas and south into northern Mexico.)
 - Vireo vicinior* (p. 202)
 - cc. Smaller (wing not more than 59, tail less than 55); upper parts not clear gray and lores not entirely whitish.
 - d. Back olive-gray, grayish olive, or dull olive-green, the pileum not essentially different in color.
 - e. Smaller (wing 53, tail 43, tarsus 17); bill black. (Southwestern Mexico.)
 - Vireo nanus* ^a (p. 204)
 - ee. Larger (wing 52-59, tail, 41.5-54, tarsus 19-20); bill brown, with paler mandible. (*Vireo bellii*.)

^a The single known specimen of this very distinct species is in much abraded plumage, and consequently I am not sure as to the character of the wing-markings. Possibly it should go under section "a."

f. Upper parts more olivaceous, sides and flanks olive-yellowish; tail shorter (41.5-48).

g. Back distinctly olive, nearly concolor with rump and upper tail-coverts; sides and flanks deeper olive-yellow; under tail-coverts sulphur yellow; tail 41.5-47. (Nebraska to Illinois and southward into northeastern Mexico; in winter south to Oaxaca.)

Vireo bellii bellii, adults (p. 204)

gg. Back grayish olive distinctly less bright than rump and upper tail-coverts; sides and flanks pale olive-yellow; under tail-coverts yellowish white; tail 45-48. (Western Texas and southward to central Mexico.) *Vireo bellii medius*, adults (p. 206)

ff. Upper parts more grayish, sides and flanks pale yellowish olive or merely tinged with that color; tail longer (47-54).

g. More strongly tinged with olive above, the sides and flanks more strongly tinged with yellowish olive. (Extreme western portion of Texas to Arizona and southward into northwestern Mexico.)

Vireo bellii arizonae, adults (p. 207)

gg. Less strongly tinged with olive above, the sides and flanks faintly, if at all, tinged with yellowish olive. (Central California to Cape San Lucas and southwestern Nevada.)

Vireo bellii pusillus, adults (p. 208)

dd. Back brownish olive (contrasted with grayish brown of pileum and hindneck) or brown, like pileum and hindneck.

e. Pileum, hindneck, and back plain brown; sides and flanks not yellow. (Young.)

f. Pileum, back, etc., grayish or vinaceous, brown.

Vireo bellii and subspecies, ^a young.

g. Pileum, back, etc., distinctly brown (between broccoli brown and raw umber) *Vireo latimeri*, young (p. 210).

ee. Pileum and hindneck grayish brown or brownish gray, in marked contrast with brownish olive of back; sides and flanks yellow (straw yellow to Naples or maize yellow). (Porto Rico).

Vireo latimeri, adults (p. 210).

VIREO BAIRDI Ridgway.

BAIRD'S VIREO.

Adults (sexes alike).—Pileum and hindneck plain grayish brown (hair brown, broccoli or drab), becoming more cinnamon or russet on forehead, especially on lateral margins; back, scapulars, rump, upper tail-coverts, and lesser wing-coverts plain, rather light, olive-brown; wings (except lesser coverts) and tail dusky with pale olive edgings. the middle and greater wing-coverts broadly tipped with yellowish white or pale primrose yellow, producing two conspicuous bands across wing, and tertials broadly edged with the same; lores and orbital ring white, the latter interrupted on upper portion by a dusky space on upper eyelid; auricular region, suborbital region (in part), sides of neck, and sides light cinnamon, fading out and becoming more olive on

^aThe young of the several forms of *V. bellii* differ in the same way as adults; that of *V. b. bellii* being most deeply colored, with flanks and under tail-coverts strongly yellowish, the others, in geographic sequence, becoming paler until in that of *V. b. pusillus* the yellow tinge to the posterior under parts is nearly if not quite wanting.

flanks; rest of under parts, together with anterior portion of malar region, white; axillars, under wing-coverts, and edges of inner webs of remiges white; maxilla clear brownish, mandible much paler, or dull brownish white (in dried skins); legs and feet dark brownish (in dried skins).

Adult male.—Length (skins), 112–117 (134.4); wing, 60–63 (61); tail, 48–53 (50.2); exposed culmen, 12; tarsus, 22–24 (23); middle toe, 10–12 (11).^a

Adult female.—Length (skins), 113–122 (118.6); wing, 60–61 (60.4); tail, 50–53 (51); exposed culmen, 11–12 (11.2); tarsus, 22–23 (22.6); middle toe, 10–11 (10.8).^a

Island of Cozumel, Yucatan.

Vireo bairdi RIDGWAY, Descr. New Species Birds from Cozumel, Feb. 26, 1885, 2; Proc. Biol. Soc. Washington, iii, Mar., 1885, 22 (Cozumel Island, Yucatan; coll. U. S. Nat. Mus.); Proc. U. S. Nat. Mus., viii, 1885, 565 (full description).

V[ireo] bairdi RIDGWAY, Man. N. Am. Birds, 1887, 477.

VIREO ATRICAPILLUS Woodhouse.

BLACK-CAPPED VIREO.

Adults (sexes alike^b).—Lores and broad orbital ring white, the latter interrupted for a short distance (1–3 mm.) on upper eyelid; rest of head and neck, except chin and throat, uniform black (oldest birds?) or black and slate-gray in variable relative proportion (younger birds?), sometimes entirely slate-gray (birds in second year?); back, scapulars, rump, upper tail-coverts, and lesser wing-coverts clear olive-green; wings (except lesser coverts) and tail dull black or dusky with light olive-green edgings (these broader and pale yellow on tertials, more whitish on longer primaries), the middle and greater wing-coverts broadly tipped with pale yellow (sulphur or primrose), forming two conspicuous bands across wing; under parts, including chin and throat, white, passing into light olive-yellow or pale yellowish olive-green on sides and flanks; axillars and under wing-coverts sulphur or primrose yellow; inner webs of remiges edged with yellowish white; maxilla black, mandible grayish blue; iris brownish red; legs and feet grayish blue.

^aFive specimens.

^bWriters differ as to whether the sexes agree in color or not. The series examined, which, however, includes only one adult female (there are eighteen adult males), if the sex has been correctly determined in all cases, shows that the sexes are alike and that the presence of black on the head or its extent is probably a matter of age. The grayer headed specimens invariably have the white of the under parts less pure, in this respect being more or less like young birds in their first autumn, which lends probability to the theory that relative age is the true explanation of the variations noted. (See Brewster, Bull. Nutt. Orn. Club, iv, 100; Ragsdale, Bull. Nutt. Orn. Club, v, 239; Goss, Auk, ii, 275, 276.)

Young (in first autumn and winter).—Similar to adults, but without black or clear gray on head, which is replaced by grayish brown or brownish gray; olive-green of back, etc., browner; white of under parts and head markings much less pure, strongly washed with pale buff or brownish buff, the sides and flanks more brownish olive-green.

Adult male.—Length (skins), 100–112 (104.5); wing, 54–57 (55.8); tail, 40–46 (43.8); exposed culmen, 9; tarsus, 19; middle toe, 10.^a

Adult female.—Length (skin), 104; wing, 55; tail, 43.5; exposed culmen, 9; tarsus, 18.5; middle toe, 10.^b

Southwestern Kansas (Comanche County) southward through Oklahoma and west-central Texas (eastward to Cooke, Comanche, Comal, Bexar, and Medina counties); southward in winter to Mexico, as far as State of Sinaloa (Mazatlan).

Vireo atricapilla WOODHOUSE, Proc. Ac. Nat. Sci. Phila., vi, 1852, 60 (San Pedro R., w. Texas; type in coll. U. S. Nat. Mus.); in Rep. Sitgreaves' Expl. Zuni and Col. R., 1853, 75, pl. 1 (San Pedro R.).—BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 328 (Texas).

Vireo atricapillus CASSIN, Illustr. Birds Tex., Cal., etc., 1854, 153, pl. 24.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 337; Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 12 (San Pedro R., Texas); Cat. N. Am. Birds, 1859, no. 427; Review Am. Birds, 1866, 353 (San Pedro R. and El Paso, Texas).—COOPER, Orn. Cal., 1870, 121 (Texas).—COUES, Check List, 1873, no. 133; 2d ed., 1882, no. 185; Birds Col. Val., 1878, 533; Bull. Nutt. Orn. Club, iv, 1879, 193, pl. 1 (New Braunfels, Comal Co., Texas, breeding).—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 272 (Mazatlan, Sinaloa).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 383, pl. 17, fig. 6 (w. Texas; Mazatlan).—DEANE, Bull. Nutt. Orn. Club, iv, 1879, 58 (Camp Verde, Medina Co., and Comanche Co., n. e. part Erath Co., and Cooke Co., Texas, breeding).—BREWSTER, Bull. Nutt. Orn. Club, iv, 1879, 93–103 (history, nesting habits, descr. nest and eggs).—RAGSDALE, Bull. Nutt. Orn. Club, v, 1880, 239 (Cooke Co., Texas, breeding; remarks on plumage of sexes and young).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 142.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1881, 199 (Mazatlan).—BROWN, Bull. Nutt. Orn. Club, vii, 1882, 37 (Boerne, s. w. Texas, Mar. 27).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 300.—GOSS, Auk, ii, 1885, 274 (Comanche Co., s. w. Kansas, breeding; habits, descr. nest, measurements, etc.); iii, 1886, 114, 115 (Kansas); Hist. Birds Kansas, 1891, 531 (s. Kansas, summer res.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 630.—LLOYD, Auk, iv, 1887, 295 (Concho and Tom Green counties, Texas, breeding; habits; song; descr. nest and eggs).—COOKE, Bird Migr. Miss. Val., 1888, 236 (Bandera Co., San Angelo, etc., Texas; Comanche Co., Kansas; dates).—ATTWATER, Auk, ix, 1892, 340 (near San Antonio, Texas, breeding).—NEHRLING, Our Native Birds, etc., i, 1893, 306.—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 397, fig. 492.

[*Vireo*] *atricapillus* GRAY, Hand-list, i, 1869, 380, no. 5753.—COUES, Key N. Am. Birds, 1872, 124.

[*Vireo*] *atricapillus* COUES, Key N. Am. Birds, 2d ed., 1884, 336.—RIDGWAY, Man. N. Am. Birds, 1887, 474.

^a Eight specimens.

^b One specimen.

VIREO NOVEBORACENSIS NOVEBORACENSIS (Gmelin).

WHITE-EYED VIREO.

Adults (sexes alike).—Above plain greenish olive or dull olive-green, usually passing into grayish on hindneck; wings and tail dusky grayish brown with light olive-green edgings, the middle and greater wing-coverts rather broadly tipped with pale yellow or yellowish white, producing two distinct bands across wing, the tertials broadly edged with the same (except in worn plumage); broad supraloral stripe and narrow orbital ring canary or sulphur yellow; a dusky loreal streak, extending to anterior angle of eye, where interrupting the yellowish orbital ring; auricular and suborbital regions and sides of neck grayish olive or olive-gray, fading into very pale gray or grayish white on malar region; chin, throat, median portion of chest and breast, abdomen, and under tail-coverts dull white, passing laterally into pale yellow, more or less washed with olive, on sides and flanks, the chest and breast more or less tinged with yellow or grayish (or both), the anal region and shorter under tail-coverts also tinged with yellow; axillars and under wing-coverts pale yellow (primrose) or yellowish white; inner webs of remiges edged with grayish white; maxilla black, with paler tomia; mandible grayish black in dried skins, bluish gray in life; iris white; legs and feet dusky (grayish blue in life).

Young.—Similar to adults, but upper parts duller and browner; supraloral stripe and orbital ring grayish white or brownish white, instead of yellow; chin, throat, and chest very pale gray or brownish gray; sides and flanks pale olive-yellow; iris brownish.

Adult male.—Length (skins), 108–122 (116.1); wing, 60–65 (61.4); tail, 46–53 (49); exposed culmen, 9.5–11 (10.1); tarsus, 18–20 (19.5); middle toe, 9–11 (10.2).^a

Adult female.—Length (skins), 108–121 (114.3); wing, 57–63 (60.5); tail, 44–51 (47.3); exposed culmen, 9.5–11 (10.1); tarsus, 18.5–21 (19.7); middle toe, 10–11 (10.4).^b

^a Eighteen specimens.

^b Thirteen specimens.

Eastern and western specimens compare in average measurements as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Ten adult males from Atlantic States	62.4	49.5	10	19.3	10
Eight adult males from Mississippi Valley	61.4	48.4	10.1	19.7	10.3
FEMALES.					
Ten adult females from Atlantic States	61	47.7	10.1	20	10.6
Three adult females from Mississippi Valley	59	46.2	9.8	18.8	10.3

Eastern United States; north to Massachusetts, New York, southern Wisconsin, southern Minnesota, etc., occasionally to Vermont and New Brunswick (South Bay), west to western border of Great Plains; breeding from northern limit of its range southward to northern (central) Florida and Texas (except Rio Grande Valley); wintering from South Carolina, Georgia, Florida and Texas southward to Cuba (rarely) and through eastern Mexico (west to Sabinas, Coahuila) to Tabasco (Frontera), Campeche (Apazote), Yucatan (Chichen Itza; Merida; Cozumel Island), Guatemala (Coban), Honduras (?), and island of St. Andrews, Caribbean Sea.

[*Muscicapa*] *noveboracensis* GMELIN, Syst. Nat., i, 1788, 947 (based on *Green Fly-catcher* Pennant, Arctic Zool., 389).—LATHAM, Index Orn., ii, 1790, 489.—STEPHENS, Shaw's Gen. Zool., x, 1817, 366.

Muscicapa nova-boracensis LESSON, Man. d'Orn., i, 1828, 153.

Vireo noveboracensis BONAPARTE, Journ. Ac. Nat. Sci. Phila., iv, 1824, 176; Ann. Lyc. N. Y., ii, 1826, 70; Geog. and Comp. List, 1838, 26.—AUDUBON, Orn. Biog., i, 1831, 328, pl. 63; Synopsis, 1839, 161; Birds Am., oct. ed., iv, 1842, 146, pl. 240 ("Nova Scotia").—NUTTALL, Man. Orn. U. S. and Can., i, 1832, 306.—THOMPSON, Nat. Hist. Vermont, 1853, 77.—HOY, Proc. Ac. Nat. Sci. Phila., 1853, 309 (Wisconsin).—GUNDLACH, Journ. für Orn., 1855, 469 (Cuba); 1861, 404 (do.); 1872, 484 (do.).—SCLATER, Proc. Zool. Soc. Lond., 1857, 204 (Jalapa, Vera Cruz), 228 (Santecomapan, Vera Cruz); Cat. Am. Birds, 1862, (Mexico; Honduras).—MAXIMILIAN, Journ. für Orn., 1858, 187 (lower Missouri R.).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 328, part; Cat. N. Am. Birds, 1859, no. 248, part; Review Am. Birds, 1866, 354, part (Merida, Yucatan; Honduras; "Colombia", etc.).—SALVIN and SCLATER, Ibis, 1860, 274 (Coban, Guatemala).—BREWER, Proc. Bost. Soc. N. H., vii, 1860, 307 (Cuba).—DRESSER, Ibis, 1865, 481 (San Antonio, Texas; common sum. resid.).—ALLEN, Bull. Mus. Comp. Zool., ii, 1871, 270 (e. Florida, winter).—COUES, Am. Nat., v, 1871, 197 (Kansas); Check List, 1873, no. 129; 2d ed., 1882, no. 181; Birds N. W., 1874, 100; Birds Col. Val., 1878, 520.—SNOW, Birds Kansas, 1873, 5 (Lawrence, e. Kansas, June).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 385, pl. 17, fig. 11.—LAWRENCE, Bull. U. S. Nat. Mus., no. 4, 1876, 17 (Santa Efigenia, Oaxaca, Dec.).—BREWSTER, Bull. Nutt. Orn. Club, iii, 1878, 116 (descr. first plumage).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 143; Proc. U. S. Nat. Mus., viii, 1885, 565 (Cozumel I.); Orn. Illinois, i, 1889, 188.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1881, 200.—NEHRING, Bull. Nutt. Orn. Club, vii, 1882, 11 (s. e. Texas, breeding); Our Native Birds, etc., i, 1893, 302, pl. 15, fig. 2.—BROWN (N. C.), Bull. Nutt. Orn. Club, vii, 1882, 37 (Boerne, Kendall Co., Texas, breeding).—CHAMBERLAIN, Bull. Nutt. Orn. Club, vii, 1882, 104 (South Bay, New Brunswick, 1 spec., May 24).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 300, part (excl. syn. *crassirostris*).—BICKNELL, Auk, i, 1884, 323 (song).—CORY, Auk, iii, 1886, 188 (West Indian references); iv, 1887, 181 (St. Andrews I., Caribbean Sea); Birds W. I., 1889, 74 (do.).—Cat. W. I. Birds, 1892, 116 ("Cuba and Jamaica").—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 631, part.).—LLOYD, Auk, iv, 1887, 295 (Concho Co., w. Texas, Oct.; "eyes pink").—COOKE, Bird Migr. Miss. Val., 1888, 236 (localities and dates).—SCOTT, Auk, vii, 1890, 15 (Tarpon Springs, migr. and winter resid.).—WAYNE, Auk, xii, 1895, 315 (Wacissa R., n. w. Florida, breeding).—ATTWATER, Auk, ix, 1892, 340 (San Antonio,

- Texas, breeding).—PORTER, Auk, xvii, 1900, 72 (Newfoundland, 1 spec., Sept. 8, 1899).—CARROLL, Auk, xvii, 1900, 347 (Refugio Co., Texas, breeding).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 398.
- [*Vireo noveboracensis* BONAPARTE, Consp. Av., i, 1850, 330, part.—GRAY, Handlist, i, 1869, 380, no. 5750.—COUES, Key N. Am. Birds, 1872, 123.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 12, part.
- V[ireo] noveboracensis* CABANIS, Mus. Hein., i, 1850, 63.—COUES, Key N. Am. Birds, 2d ed., 1884, 334, part.—RIDGWAY, Man. N. Am. Birds, 1887, 475, part.
- Vireo noveboracensis* PEABODY, Rep. Orn. Mass., 1839, 298 (Massachusetts).
- Vireo noveboracensis* CABOT, Naumannia, ii, Heft iii, 1852, 66 (Lake Superior).
- Vireo noveboracensis* WOODHOUSE, in Rep. Sitgreaves' Expl. Zuffi and Col. R., 1853, 75.
- Vireo noveboracensis* COUES, Am. Nat., ii, 1868, 576 (Texas and Indian Territory).—TRIPPE, Proc. Essex Inst., vi, 1871, 117.
- Vireo (Lanivireo) noveboracensis* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, p. "xxxv" (=xxxv).—GUNDLACH, Journ. für Orn., 1861, 324 (Cuba).
- Lanius noveboracensis* LICHTENSTEIN, Preis-Verz. Mex. Vög., 1830, 2; Journ. für Orn., 1863, 58 (reprint).
- Vireo musicus* VIEILLOT, Ois. Am. Sept., i, 1807, 83, pl. 52.
- Muscicapa cantatrix* WILSON, Am. Orn., ii, 1810, 166, pl. 18, fig. 6 (e. Pennsylvania; coll. Peale's Mus.).
- Vireo cantatrix* BONAPARTE, Journ. Ac. Nat. Sci. Phila., iv, 1824, 175.—HAYMOND, Proc. Ac. Nat. Sci. Phila., 1856, 290 (Indiana).

VIRO NOVEBORACENSIS BERMUDIANUS (Bangs and Bradlee).

BERMUDA VIRO.

Very similar to *V. n. noveboracensis* in coloration, but usually slightly grayer above and with sides and flanks less strongly washed with yellow and olive; wing averaging shorter and tarsus longer. (Intermediate in coloration between *V. n. noveboracensis* and *V. n. maynardi*, but decidedly smaller than the latter.)

Adult male.—Length (skins), 113–123 (117); wing, 57–60 (58.7); tail, 48–50 (49); exposed culmen, 9.5–10.5 (10); tarsus, 20–21 (20.5); middle toe, 10–11 (10.3).^a

Adult female.—Wing, 58–59.5 (58.8); tail, 46–47 (46.7); exposed culmen, 10.6–11 (10.8); tarsus, 20.2–20.4 (20.3).^b

Bermuda Islands; resident.^c

- Vireo noveboracensis* (not *Muscicapa noveboracensis* Gmelin) JARDINE, Contr. Orn., 1848, 79 (Bermudas; resident).—HURDIS, Jardine's Contr. Orn., 1850, 5 (Bermudas).—JONES, Naturalist in Bermuda, 1859, 71.—MARTENS, Journ. für Orn., 1855, 212 (Bermudas).—BLAND, Ann. Rep. Smithsonian. Inst. for 1858 (1859), 287 (Bermudas).—PRENTISS, Auk, xiii, 1895, 238 (Bermudas).
- V[ireo] noveboracensis* COUES, Key N. Am. Birds, 2d ed., 1884, 334, part.—RIDGWAY, Man. N. Am. Birds, 1887, 475, part.

^a Three specimens.

^b Three specimens, measured by Outram Bangs (see Auk, xviii, 1901, 252.)

^c Not a very satisfactory subspecies.

Vireo bermudianus BANGS and BRADLEE, Auk, xviii, July, 1901, 252 (Hamilton, Bermuda; coll. Mus. Comp. Zool.).

Vireo noveboracensis bermudianus AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xix, July, 1902, 326 (check list no. 631b).

VIREO NOVEBORACENSIS MAYNARDI Brewster.

KEY WEST VIREO.

Similar to *V. n. noveboracensis*, but larger; upper parts averaging decidedly grayer, sometimes with more gray than greenish olive; yellow of sides and flanks averaging much paler, sometimes consisting of a mere tinge or wash of pale olive-yellow.

Adult male.—Length (skins), 116–130 (120.6); wing, 56–63 (61.6); tail, 48–52 (50.2); exposed culmen, 11–12 (11.4); tarsus, 18.5–22 (19.8); middle toe, 11–12 (11.4).^a

Adult female.—Length (skins), 114–117 (115.5); wing, 59; tail, 46.5–47 (46.7); exposed culmen, 10–12 (11); tarsus, 19–19.5 (19.2); middle toe, 11.^b

Florida Keys (including Key West) and coast district of Florida peninsula, north to Tarpon Springs and Anastasia Island.^c

Vireo noveboracensis maynardi BREWSTER, Auk, iv, July, 1887, 148 (Key West, Florida; coll. U. S. Nat. Mus.).—RIDGWAY, Man. N. Am. Birds, 1887, 593.—AMERICAN ORNITHOLOGISTS' UNION, Check List, abridged ed., 1889, no. 631a; 2d ed., 1895, no. 631a.—SCOTT, Auk, v, 1888, 187 (Key West and Punta Rassa, Florida); vii, 1890, 15 (Key West, Punta Rassa, and Tarpon Springs, Florida; crit.), 312, in text (crit.); ix, 1892, 213 (Caloosahatchee R., Florida, breeding).—CHAPMAN, Auk, v, 1888, 399.

V[ireo] noveboracensis maynardi RIDGWAY, Man. N. Am. Birds, 1887, 475.

VIREO NOVEBORACENSIS MICRUS Nelson.

SMALL WHITE-EYED VIREO.

Similar in coloration to *V. n. maynardi*, but decidedly smaller even than *V. n. noveboracensis* (except feet).

Adult male.—Length (skins), 107–117 (112.4); wing, 55–59 (57.4);

^aTen specimens, from Key West.

^bTwo specimens, from Key West.

Specimens from the mainland of Florida (Fort Myers, Tarpon Springs, Anastasia Island, etc.) are decidedly not typical of this form, being intermediate in both measurements and coloration. Still they are nearer *V. n. maynardi* than *V. n. noveboracensis*. Specimens measure as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
One adult male from Fort Myers.....	59	47	12	19	11
One adult male from Tarpon Springs.....	59	46.5	10	19.5	11
FEMALE.					
One adult female from Anastasia Island.....	57	46	11.5	19	10

^cSee remarks in footnote b.

tail, 44-49 (47.4); exposed culmen, 8-9.5 (8.9); tarsus, 19-20 (19.9); middle toe, 9-11 (10.1).^a

Adult female.—Length (skins), 111-114 (112.2): wing, 54-58 (56.1); tail, 44-49 (46.3); exposed culmen, 9-10 (9.7); tarsus, 19.5-20 (19.8); middle toe, 10-11 (10.2).^b

Rio Grande Valley of Texas (Cameron and Hidalgo counties to Kinney County) and northeastern Mexico, in States of Tamaulipas (Matamoras; Ciudad Victoria; Mier; Soto La Maria), Nuevo Leon (Monterey), and San Luis Potosi (Angostura, December).

Vireo noveboracensis (not *Muscicapa noveboracensis* Gmelin) BAIRD, Rep. U. S. and Mex. Bound. Surv., ii, pt. 2, 1859, 12 (Brownsville, Texas).—MERRILL, Proc. U. S. Nat. Mus., i, 1878, 125 (Fort Brown, Texas, breeding).—SENNETT, Bull. U. S. Geol. and Geog. Surv. Terr., v, 1879, 389 (Lomita, s. Texas, breeding).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 143, part.—COUES, Check List, 2d ed., 1882, no. 181, part.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1881, 200, part.—GADOW, Cat. Birds Brit. Mus., viii, 1883, 300, part.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 631, part.—COOKE, Bird Migr. Miss. Val., 1888, 236, part (lower Rio Grande Valley).—JOY, Proc. U. S. Nat. Mus., xvi, 1893, 778 (Hacienda Angostura, San Luis Potosi, Dec. 16).

[*Vireo*] *noveboracensis* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 12, part.

V[ireo] noveboracensis COUES, Key N. Am. Birds, 2d ed., 1884, 334, part.—RIDGWAY, Man. N. Am. Birds, 1887, 475, part.

Vireo noveboracensis micrus NELSON, Auk, xvi, Jan., 1899, 30 (Victoria, Tamaulipas; coll. U. S. Nat. Mus.).—MEARNS, Auk, xix, 1902, 87 (Kinney and Uvalde counties to Gulf coast, s. Texas; crit.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xix, 1902, 326 (check list no. 631c).

V[ireo] n[oveboracensis] micrus BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 399.

VIREO PERQUISITOR Nelson.

VERA CRUZ VIREO.

Similar to *V. noveboracensis micrus*, but smaller (except bill), tarsus much shorter, upper parts entirely greenish olive, and under parts wholly dingy yellowish.

^a Twelve specimens.

^b Six specimens.

Specimens from southern Texas compare in average measurements with those from Mexico as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Ten adult males from Tamaulipas and Nuevo Leon....	57.4	47.6	8.7	19.8	10
Two adult males from southern Texas	57	47	9	19.5	10.5
FEMALES.					
Three adult females from Tamaulipas, Nuevo Leon, and San Luis Potosi.....	56.8	46.7	9.3	19.7	10.3
Three adult males from southern Texas	55.3	46	10	20	10.2

The Texas specimens are typical as to coloration.

Adult male.—Above plain olive-green (deeper and browner than in *V. noveboracensis*); wings and tail dusky with yellowish olive-green or olive-yellow edgings; middle and greater wing-coverts broadly tipped with sulphur-yellow, producing two conspicuous bands across wing, and tertials broadly edged with the same; broad supraloral stripe deep gamboge or saffron yellow; orbital ring paler yellow, interrupted at anterior angle of eye by a dusky grayish loreal streak; sides of head, otherwise, and sides of neck light brownish olive-green; chin, throat, and chest mixed pale grayish and pale buffy yellow, deepening on breast, sides, and flanks into dull canary yellow washed or shaded with olive; abdomen and under tail-coverts primrose yellow; axillars and under wing-coverts deeper primrose yellow, or intermediate between sulphur and straw yellow; inner webs of remiges broadly edged with yellowish white, those of rectrices edged with pale yellow; maxilla grayish black with paler tomia, mandible grayish (bluish gray in life); legs and feet dusky horn color (grayish blue in life?); length (skin), 110; wing, 57; tail, 43.5; exposed culmen, 9.5; tarsus, 18.5; middle toe, 10.5.^a

Eastern Mexico, in State of Vera Cruz (Papantla).

Vireo perquisitor NELSON, Auk, xvii, July, 1900, 267 (Papantla, Vera Cruz; coll. U. S. Nat. Mus.).

VIREO GUNDLACHII Lembeys.

GUNDLACH'S VIREO.

Adults (sexes alike).—Above plain deep olive-gray; wings and tail dusky brownish gray with light olive-gray edgings, the middle and greater wing-coverts narrowly tipped with pale olive-gray or olive-whitish, forming two indistinct narrow bands across wing, of which the anterior one is sometimes obsolete; supraloral patch and orbital ring pale straw or primrose yellow, the latter interrupted on both eyelids by a dusky grayish space; auricular region yellowish olive-gray or pale yellowish gray, the suborbital and malar regions similar but paler; under parts pale straw or primrose yellow, passing into light grayish olive on sides and flanks; axillars pale primrose yellow; under wing-coverts white tinged with primrose yellow; inner webs of remiges edged with white; maxilla horn brownish, mandible paler; legs and feet grayish dusky (grayish blue or bluish gray in life).

Adult male.—Length (skins), 124–129 (126.5); wing, 54–58 (56.6); tail, 49–53 (51.6); exposed culmen, 12–13 (12.2); tarsus, 21; middle toe, 12.^b

Adult female.—Length (skins), 110–126 (118.2); wing, 54–57 (55.3):

^a Measurements of the type specimen (so far unique).

^b Six specimens.

tail, 48–51.5 (50.2); exposed culmen, 11–12 (11.8); tarsus, 20–21 (20.8); middle toe, 11–12.5 (11.7).^a

Island of Cuba, Greater Antilles.

Vireo gundlachi LEMBEYE, Aves de la Isla de Cuba, 1850, 29, pl. 5, fig. 1.—CABANIS, Journ. für Orn., 1855, 468.—BREWER, Proc. Bost. Soc. N. H., vii, 1860, 307.—GUNDLACH, Repert. Fisico-Nat. Cuba, i, 1865, 228.

Vireo gundlachi BAIRD, Review Am. Birds, 1866, 369 (Fermina, w. Cuba).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 304.—CORY, Auk, iii, 1886, 188 (synonymy and diagnosis); Birds W. I., 1889, 74 (do.); Cat. W. I. Birds, 1892, 17, 116, 129.—CHAPMAN, Bull. Am. Mus. N. H., iv, 1892, 309 (Trinidad, s. Cuba).

[*Vireo*] *gundlachi* GRAY, Hand-list, i, 1869, 382, no. 5771.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 12.—CORY, List Birds W. I., 1885, 10.

[*Vireo*] *gundlachi* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 382.—RIDGWAY, Man. N. Am. Birds, 1887, 478.

VIREO CRASSIROSTRIS CRASSIROSTRIS Bryant.

LARGE-BILLED VIREO.

Somewhat like *V. noveboracensis maynardi*, but larger and without white on under parts.

Adults (sexes alike).—Above plain olive, varying from grayish olive or deep olive-gray to brownish olive, the rump and upper tail-coverts more decidedly olive, approaching dull olive-green; wings and tail dusky grayish brown, with pale olive or olive-grayish edgings (these nearly white on primaries), the tertials broadly edged with dull white; middle and greater wing-coverts broadly tipped with white, forming two conspicuous bands across wing; broad supraloral stripe and orbital ring pale yellow (varying from sulphur yellow to yellowish white), the latter interrupted on upper portion by a dusky spot on middle of upper eyelid; a dusky grayish loreal streak, becoming blackish at anterior angle of eye; auricular region and sides of neck similar in color to upper parts but slightly paler; under parts varying from very pale grayish buffy or dull buffy whitish to light dull yellowish buff, sometimes slightly tinged with pale yellow; axillars and under wing-coverts pale yellow (primrose yellow); inner webs of remiges broadly edged with white; maxilla dusky horn color with paler tomia; mandible pale horn color (grayish or bluish in life?); legs and feet horn color or dusky in dried skins (bluish gray in life?).^b

Adult male.—Length (skins), 117–135 (125.5); wing, 59–66 (63.3); tail, 48–54 (50.7); exposed culmen, 11.5–14 (12.6); tarsus, 20–22.5 (21.6); middle toe, 10.5–12 (11.7).^c

Adult female.—Length (skins), 115–126 (119.7); wing, 59–64 (61.2);

^a Six specimens.

^b The color of the iris in this species seems not to have been recorded.

^c Thirty-three specimens.

tail, 46-52 (48.8); exposed culmen, 12-13 (12.3); tarsus, 20-22 (21.1); middle toe, 11-13 (11.5).^a

More western Bahama Islands (Abaco, Eleuthera,^b New Providence, Andros, San Salvador^b or Cat Island, Green Cay,^c and Inagua); Highburna Key; Pimlico Key.

Lanivireo crassirostris BRYANT, Proc. Bost. Soc. N. H., vii, 1859, 112 (Island of New Providence, Bahamas; type in coll. U. S. Nat. Mus.).—CORY, Birds Bahama I., 1880, 83.

Vireo crassirostris BAIRD, Review Am. Birds, May, 1866, 368 (Naassau, New Providence I.).—CORY, Auk, iii, 1886, 188, part; viii, 1891, 294 (New Providence), 295 (Berry islands), 296 (Biminis), 297 (Caicos I.; Inagua), 298 (Abaco), 350 (Great Bahama; Inagua), 351 (Eleuthera; Inagua); ix, 1892, 48 (Mara-gauno), 49 (Inagua); Cat. Birds W. I., 1889, 75, part; Cat. W. I. Birds, 1892, 17, 116, 127, 153 (Great Bahama, Abaco, Berry I., Biminis, Eleuthera, New Providence, Andros?, Cat. I., Green Cay, and Inagua, Bahamas).—RIDGWAY, Auk, viii, 1891, 334 (Abaco), 335 (New Providence), 336 (Eleuthera; Cat I.), 338 (Green Cay).—NORTHROP (and ALLEN), Auk, viii, 1891, 70 (Andros I.).—BANGS, Auk, xvii, 1900, 289 (New Providence; color variations).

[*Vireo*] *crassirostris* GRAY, Hand-list, i, 1869, 382, no. 5777.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 12.—CORY, List Birds W. I., 1885, 10.

V[ireo] crassirostris RIDGWAY, Man. N. Am. Birds, 1887, 476.

Vireo noveboracensis (not *Muscicapa noveboracensis* Gmelin) GADOW, Cat. Birds Brit. Mus., viii, 1883, 300, part (in synonymy).

^aSixteen specimens.

Specimens from different islands average, respectively, as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Ten adult males from New Providence	62.4	50.5	12.4	21	11.8
Ten adult males from Abaco.....	63.8	50.8	13.1	21.4	11.6
One adult male from Andros.....	62	50	12	21	11.5
Nine adult males from Eleuthera	62.7	50.2	12.5	21.3	11.8
Two adult males from Green Cay	63.2	51	13	22.2	12
Two adult males from Cat Island (San Salvador).....	62	52	12.2	21.7	11.7
FEMALES.					
Nine adult females from New Providence	61.1	48.8	12.2	21	11.7
Two adult females from Abaco	61	48	12.2	20.5	11
Three adult females from Eleuthera	62	50	12.5	21.3	11.2
Two adult females from Green Cay	60.5	48	12.7	22	11.5
One adult female from Inagua.....	64	49	12.5	22	12.5

Specimens from Abaco average slightly grayer than those from New Providence, but the grayest examples are the two from Andros and Inagua, respectively.

^bOn these islands mixed with *V. c. flavescens*, or specimens intermediate between the two forms.

^cSpecimens tending toward *V. c. flavescens*.

VIREO CRASSIROSTRIS FLAVESCENS Ridgway

YELLOW LARGE-BILLED VIREO.

Similar to *V. c. crassirostris*, but much more brightly colored; upper parts yellowish olive or dull olive-green; under parts pale yellow (varying from straw yellow to naples yellow or dull canary yellow, tinged with olive laterally; supraloral stripe and orbital ring bright canary yellow.

Adult male.—Length (skins), 115–130 (122.3); wing, 60–65 (62.8); tail, 47–50 (49.1); exposed culmen, 11–13 (12); tarsus, 21–23 (21.9); middle toe, 11–12 (11.9).^a

Adult female.—Length (skins), 112–126 (120.9); wing, 59–64 (61.1); tail, 44–50 (48.2); exposed culmen, 11–13 (11.8); tarsus, 20–22 (21.1); middle toe, 11–12 (11.7).^b

More eastern Bahama Islands (Concepcion Island; Rum Cay; San Salvador or Cat Island;^a Green Cay;^a Eleuthera;^c Inagua).^c

^aSixteen specimens.

^bFourteen specimens.

Specimens from different islands average, respectively, as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Eight adult males from Rum Cay.....	63.1	48.7	12.1	22	12
Four adult males from Cat Island.....	62.2	50.2	11.9	21.7	12.1
Three adult males from Concepcion Island.....	62.2	48.3	12.2	21.7	11.8
One adult male from Inagua.....	64	49	11	22	12
FEMALES.					
Four adult females from Rum Cay.....	60	47	11.5	21	11.9
One adult female from Cat Island.....	62	49	12	21	11.6
Five adult females from Eleuthera Island.....	61	49	12.1	21.1	11.5
One adult female from Green Cay.....	61	47	12	21	11
One adult female from Concepcion Island.....	63	48	12	21.5	11.5
Two adult females from Inagua.....	62	49	11.5	21.5	11.5

^cOn these islands occurring together with *V. c. crassirostris* or intermediates between the two forms.

Locality.	<i>V. c. crassirostris</i> .		Intermediate.		<i>V. c. flavescens</i> .	
	Males.	Females.	Males.	Females.	Males.	Females.
Abaco.....	10	2				
Eleuthera.....	6	2	2	6		
New Providence.....	30	13				
Highburna Key.....	1					
Andros.....	4			1		
Pimlico Key.....	1					
Cat Island (San Salvador).....	4		1	1	1	
Concepcion.....					3	1
Rum Cay.....					8	4
Green Cay.....			3	2		1
Inagua.....		1			1	2

V[ireo] crassirostris flavescens RIDGWAY, Man. N. Am. Birds, Sept., 1887, 476 (Concepcion I., Bahamas; coll. U. S. Nat. Mus.; also Cat I., Green Cay, Rum Cay, and Galding Key, Andros I.).

Vireo crassirostris flavescens RIDGWAY, Man. N. Am. Birds, 1887, 592; 2d ed. 1896, 614; Auk, viii, Oct., 1891, 336 (Cat I.), 338 (Rum Cay), 339 (Green Cay; Concepcion I.).—CORY, Auk, v, 1888, 157.

Vireo alleni (not of Cory, 1886) CORY, Cat. W. I. Birds, 1892, 17, part.

Vireo crassirostris alleni CORY, Cat. W. I. Birds, 1892, 116, 153, part (Berry I., Bimini, Eleuthera, Rum Cay, Concepcion, Maragauna, and Inagua, Bahamas).

VIREO CRASSIROSTRIS ALLENI Cory.

ALLEN'S VIREO.

Similar in coloration to *V. c. flavescens*, but upper parts browner, white wing-bands apparently broader, and outermost primary smaller.^a

Adult male.—Length (skins), 115–124 (119.5); wing, 61–63 (62); tail, 48.5–52 (50.2); exposed culmen, 12–12.5 (12.2); tarsus, 21–22 (21.3); middle toe, 11.5–12 (11.7).^b

Adult female.—Length (skin), 120; wing, 58; tail, 47; exposed culmen, 12; tarsus, 21; middle toe, 11.

Islands of Grand Cayman and Cayman Brac (south of Cuba). Greater Antilles.

Vireo alleni CORY, Auk, iii, Oct., 1886, 500, 501 (Grand Cayman, Greater Antilles; coll. C. B. Cory); v, 1888, 157; vi, 1889, 31 (Cayman Brac); Birds W. I., 1889, 75; Cat. W. I. Birds, 1892, 17, part.

Vireo crassirostris alleni CORY, Cat. W. I. Birds, 1892, 116, 153, part (Grand Cayman).

VIREO CRASSIROSTRIS APPROXIMANS Ridgway.

OLD PROVIDENCE VIREO.

Similar in coloration to *V. c. flavescens*, but tarsus longer, tail more rounded, and coloration paler throughout, the bill light brown instead of dusky.

Adult male.—Length (skin), 125; wing, 61; tail, 52; the lateral rectrices 7 mm. shorter; exposed culmen, 11; tarsus, 23; middle toe, 11.^c

Island of Old Providence, Caribbean Sea.

Vireo approximans RIDGWAY, Proc., U. S. Nat. Mus., vii, July 29, 1884, 179 (Old Providence I., Caribbean Sea; coll. U. S. Nat. Mus.).—CORY, Auk, iv, 1887, 180 (Old Providence).

^aThe only specimens of this form which I have been able to examine are three males and one female from the island of Cayman Brac. These are in much worn and badly discolored plumage, so that a satisfactory comparison with *V. c. flavescens* can not be made. It is possible the two supposed forms may prove inseparable, in which case *V. c. flavescens* would become a synonym of *V. c. alleni*.

^bThree specimens from Cayman Brac.

^cMeasurements of the type specimen.

VIREO OCHRACEUS Salvin.

OCHRACEOUS VIREO.

Adult (sexes alike).—Above, including auricular region and sides of neck, plain olive, varying from grayish olive to dull olive-green; wings and tail dusky with pale yellowish olive edgings (becoming whitish on tertials), the middle and greater wing-coverts tipped with white, dull white, or yellowish white, forming two distinct bands across wing; supraloral stripe dull canary yellow, varying to straw yellow or dull yellowish white; a small dusky or olive spot on upper eyelid and another at anterior angle of eye fading out anteriorly; under parts, including malar region, varying from buffy or creamy canary yellow to pale straw yellow, passing into pale olive on sides and flanks; axillars and under wing-coverts primrose or sulphur yellow; bill grayish brown, the mandible paler; iris white;^a legs and feet dusky in dried skins (bluish gray or grayish blue in life?).

Adult male.—Length (skins), 100–119 (111.5); wing, 51–57 (54.2); tail, 40–47 (44.7); exposed culmen, 10–12 (10.5); tarsus, 19–21 (20); middle toe, 9–11 (10.3).^b

Adult female.—Length (skins), 106–120 (112); wing, 52–57 (53.7); tail, 41–46 (43.5); exposed culmen, 11; tarsus, 20; middle toe, 10–11 (10.2).^c

Southeastern^d Mexico, in States of Campeche (Campeche; Jaina), and Yucatan (Merida; Progreso; La Vega; Chichen Itza; Mugeris Island), and southward through Guatemala (Sakluk, near Peten; San

^a Dr. H. Berendt, on label.

^b Sixteen specimens.

^c Four specimens.

Specimens from different localities compare in average measurements as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Eight adult males from Yucatan and Campeche.....	53.7	45	10	20	10.1
Six adult males from Mugeris Island.....	54.8	45.6	11	20	10.5
One adult male from Mazatlan.....	55	41	11	21	11
One adult male from Nicaragua (Greytown).....	53	40	10	19	10
FEMALES.					
One adult female from Yucatan.....	54	44	11	20	10
One adult female from Mugeris Island.....	52	43	11	20	11
One adult female from British Honduras (Belize).....	57	46	11	20	10
One adult female from Nicaragua (Greytown).....	54	44	11	20	10

^dThe United States National Museum collection contains a single specimen from Mazatlan, northwestern Mexico (no. 34025, adult male, June 16, 1862; A. J. Grayson). This specimen I am unable to distinguish from examples from other localities, though the bill appears to be slightly larger.

José). British Honduras (Belize), etc., to eastern Nicaragua (Greytown, February).

- Vireo ochraceus* SALVIN, Proc. Zool. Soc. Lond., 1863, 188 (San José, Guatemala; coll. Salvin and Godman).—BAIRD, Review Am. Birds, 1866, 366 (Mazatlan, w. Mexico; Merida, Yucatan; San José, Sakluk, and near Peten, Guatemala).—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 272 (Mazatlan).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1881, 201, pl. 12, fig. 1 (Progreso, Yucatan; Corosal, British Honduras; Sakluk, near Peten, Guatemala; etc.).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 302.—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 486 (Greytown, Nicaragua, Feb. 1 and Apr. 10; crit.).—CHAPMAN, Bull. A. N. Mus. N. H., viii, 1896, 278 (Chichen Itza, Yucatan).
 [*Vireo*] *ochraceus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 12.
 [*Vireo*] *ochraceus* RIDGWAY, Man. N. Am. Birds, 1887, 476.
Vireo semiflavus SALVIN, Proc. Zool. Soc. Lond., 1863, 188 (plains of Peten, Guatemala; coll. Salvin and Godman).

VIREO PALLENS Salvin.

PALE VIREO.

Similar in size, details of form, and pattern of coloration to *V. ochraceus*, but upper parts grayish olive or dark olive-gray and under parts dull white.

Adults.—Pileum, hindneck, back, scapulars, rump, upper tail-coverts and lesser wing-coverts plain grayish olive or deep olive-gray; wings and tail dusky with pale olive edgings (these whitish on tertails), the middle and greater wing-coverts tipped with dull white, producing two distinct bands across wing; broad supraloral streak and mark above posterior angle of eye dull yellowish white, separated by a dusky space occupying most of upper eyelid; lower portion of lores pale dull grayish; auricular and suborbital regions pale grayish olive; malar region, chin, throat, and rest of under parts dull white, faintly tinged with yellowish olive; axillars and under wing-coverts yellowish white; maxilla brown with paler tomia; mandible pale brown (in dried skin); legs and feet horn color (in dried skin—grayish blue in life!); length (skin), 118; wing, 55; tail, 46; exposed culmen, 12; tarsus, 20.5; middle toe, 11.^a

Western Nicaragua (Realejo) and Costa Rica (Punta Arenas).

- Vireo pallens* SALVIN, Proc. Zool. Soc. Lond., 1863, 188 (Punta Arenas, w. Costa Rica; coll. Salvin and Godman); *Ibis*, 1866, 193 (Realejo, w. Nicaragua).—BAIRD, Review Am. Birds, 1866, 365 (Realejo).—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 97 (Punta Arenas, Costa Rica).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1881, 202, pl. 12, fig. 2.—ZELEDON, Anal. Mus. Nac. Costa Rica, i, 1887, 108 (Costa Rica).—CHERRIE, Proc. U. S. Nat. Mus., xiv, 1891, 528 (Punta Arenas, Costa Rica; crit.).
 [*Vireo*] *pallens* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 12.
 [*Vireo*] *pallens* RIDGWAY, Man. N. Am. Birds, 1887, 478.
 [*Vireo ochraceus*.] Subsp. α . *Vireo pallens* GADOW, Cat. Birds Brit. Mus., viii, 1883, 302.

^aOne specimen (a cotype), no. 33601, coll. U. S. Nat. Mus., Realejo, Nicaragua, May 16, 1863; O. Salvin.

VIREO HUTTONI HUTTONI Cassin.

HUTTON'S VIREO.

Adults (sexes alike).—Above plain olive, becoming slightly more greenish olive posteriorly; wings and tail dusky with pale yellowish olive edgings; middle and greater wing-coverts rather broadly tipped with pale yellowish olive or pale olive-buff, producing two distinct bands across wing, and tertials broadly edged with the same; auricular region and sides of neck slightly paler olive than pileum and hindneck, fading gradually below into pale buffy olive or dull olive-buff on sub-orbital and malar regions, chin, throat, and chest, this into deeper buffy olive on sides and flanks, the median portion of breast, abdomen, and under tail-coverts very pale olive-buff (sometimes whitish on lower abdomen and anal region); an indistinct supraloral line and a distinct broad orbital ring pale dull olive-yellowish, the latter interrupted on middle portion of upper eyelid by a dusky spot; axillars and under wing-coverts yellowish white, sometimes faintly tinged with olive; inner webs of remiges and rectrices edged with yellowish white; bill horn color, the mandible paler; iris brown; legs and feet dusky horn color in dried skins (grayish blue in life?).

Young.—Similar to adults, but much grayer olive above, under parts much paler (chin, throat, and chest very pale olive-grayish), and auricular and suborbital regions pale as throat, etc., thus reducing contrast with pale orbital ring and supraloral line.

Adult male.—Length (skins), 110–120 (115.8); wing, 59.5–63 (60.9); tail, 47–50 (48.6); exposed culmen, 8.5–9 (8.7); tarsus, 18.5–20 (19); middle toe, 10–11 (10.7).^a

Adult female.—Length (skins), 109–119 (114.8); wing, 59–62 (60.2); tail, 48–51 (48.8); exposed culmen, 8–9.5 (8.8); tarsus, 18–19.5 (18.9); middle toe, 10–11 (10.5).^a

Coast and interior districts of California, west of the Sierra Nevada, north to Marin and Siskiyou counties, south to San Diego County; resident.

Vireo huttoni CASSIN, Proc. Ac. Nat. Sci. Phila., v, 1851, 150; vi, pl. 10, fig. 1 (Monterey, California; coll. U. S. Nat. Mus.).—BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 328 (California); Rep. Pacific R. R. Surv., ix, 1858, 339, part (Monterey, California); ed. 1860 (Birds N. Am.), atlas, pl. 78, fig. 2; Cat. N. Am. Birds, 1859, no. 249, part; Review Am. Birds, 1866, 357, part (San Francisco, Napa Valley, and Monterey, California).—COOPER, Orn. Cal., 1870, 121; Am. Nat., viii, 1874, 17.—COUES, Check List, 1873, no. 130; 2d ed., 1882, no. 182; Birds Col. Val., 1878, 525, part.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 387, part, pl. 17, fig. 12.—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1876, 236 (Santa Barbara, California, breeding).—COOPER (W. A.), Bull. Nutt. Orn. Club, iii, 1878, 68 (Santa Cruz, California; breeding habits; descr. nest and eggs).—RIDGWAY, Nom. N. Am.

^aTen specimens.

- Birds, 1881, no. 144.—GADOW, Cat. Birds Brit. Mus., viii, 1883, 303, part (in synonymy).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 632.—TOWNSEND, Proc. U. S. Nat. Mus., x, 1887, 223 (Baird, Shasta Co., California); xiii, 1890, 141 (Santa Cruz I.).—GRINNELL, Pub. ii, Pasadena Ac. Sci., 1898, 44 (Los Angeles Co., California, resident up to 6,000 ft.).—MAILLIARD, Condor, iii, 1901, 125 (Paicines, San Benito Co., California, resident).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 399.
- V[ireo] huttoni* COUES, Key N. Am. Birds, 2d ed., 1884, 334.—RIDGWAY, Man. N. Am. Birds, 1887, 477.
- [*Vireo*] *huttonii* GRAY, Hand-list, i, 1869, 380, no. 5751.—COUES, Key N. Am. Birds, 1872, 123.
- Vireo huttoni huttoni* GRINNELL, Pacific Coast Avifauna, no. 3, June 25, 1902, 62.
- Vireo (Lanivireo) huttoni* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, p. "xxxv" (=xxxv).

VIREO HUTTONI OBSCURUS Anthony.

ANTHONY'S VIREO.

Similar to *V. h. huttoni*, but coloration decidedly darker, with pileum, hindneck, and back more decidedly olive, and sides and flanks more strongly washed with olive.

Adult female.—Length (skin), 105; wing, 60; tail, 48; exposed culmen, 8.5; tarsus, 20; middle toe, 11.^a

Pacific coast district, in oak woods, from western Oregon to southern portion of Vancouver Island (Victoria); California in winter?^b

(?) *Vireo noveboracensis* (not *Muscicapa noveboracensis* Gmelin) TOWNSEND, Journ. Ac. Nat. Sci. Phila., viii, 1839, 153 (Columbia R.).

Vireo huttoni obscurus ANTHONY, Zoe, Dec., 1890, 307 (Beaverton, w. Oregon; coll. A. W. Anthony).—ROADS, Auk, x, 1893, 23 (Vancouver I.), 239, 240 (crit).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xii, 1895, 165; Check List, 2d ed., 1895, no. 632c.—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 607.—BOWLES (C. W. and J. H.), Auk, xv, 1898, 138 (Tacoma, Washington; nesting habits; descr. nest and eggs).—RATHBUN (S. F.), Auk, xix, 1902, 138 (Seattle, Washington, 1 spec., May 14, 1895; breeding near Tacoma).

V[ireo] h[uttoni] obscurus BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 399.

Vireo huttoni insularis ROAD, Auk, x, July, 1893, 239, 241 (Victoria, Vancouver I., British Columbia; coll. Provincial Mus., Victoria).

VIREO HUTTONI MEXICANUS, new subspecies. ^c

MEXICAN VIREO.

Adults.—Similar in coloration to *V. h. huttoni*, but upper part darker, with the pileum, hindneck, and back duller and grayer olive.

^a Measurements of the type specimen. I have not been able to examine a series of this form, the only other example seen being a young bird from Victoria, Vancouver Island, which differs from a young bird of *V. h. huttoni* in exactly the same respects as does the adult.

^b Said to winter in California, but I have not seen a California example referable to this form.

^c Type no. 143442, coll. U. S. Nat. Mus. (Biological Survey collection), adult male, Mount Orizaba, Puebla, Apr. 26, 1893; E. W. Nelson.

more distinctly contrasted with the greenish olive of rump and upper tail-coverts; size decidedly greater.

Young.—Very different from that of *V. h. huttoni*, with upper parts darker (deep buffy olive), and with sides of head and under parts strongly suffused with brownish buff.

Adult male.—Length (skins), 110–123 (117.9); wing, 63–70 (67.3); tail, 49–55 (51.9); exposed culmen, 9.5–10 (9.7); tarsus, 18.5–20 (19.3); middle toe, 10–11 (10.5).^a

Adult female.—Length (skins), 110–117 (113.9); wing, 62–68 (65.4); tail, 49–54.5 (51.2); exposed culmen, 9–11 (9.6); tarsus, 19–19.5 (19.1); middle toe, 10–11 (10.5).^a

More southern portions of Mexican plateau, in States of San Luis Potosi (mountains near Jesus Maria), Hidalgo (El Chico; Tulalcingo; Real del Monte), Vera Cruz (Mount Orizaba; Las Vigas; Maltrato; Perote), Puebla (Mount Orizaba), Oaxaca (Cosamaloapam; Cinco Senores; La Parada; Mount Zempoaltepec; Cerro San Felipe), Mexico (Tlalpam), Morelos (Tetela del Volcan), and Michoacan (Patzcuaro); breeding and resident throughout. Guatemala (Volcan de Fuego, Hacienda Chancol, etc.), at least in winter.

(?) *Vireo huttoni* (not of Cassin) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 339, part (Monterey, Nuevo Leon); Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 12 (do.); Cat. N. Am. Birds, 1859, no. 249, part; Review Am. Birds, 1866, 357, part (Monterey; La Parada, Oaxaca).

Vireo huttoni SCLATER, Proc. Zool. Soc. Lond., 1858, 302 (Cinco Señores, Oaxaca); 1862, 19 (Cosamaloapam, Oaxaca); Cat. Am. Birds, 1862, 358 (La Parada, Oaxaca).—SALVIN, Ibis, 1874, 99 (Volcan de Fuego, Guatemala).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 387, part.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1881, 203, excl. syn. part (Mexican and Guatemalan references and localities).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 303, excl. syn. part.

[*Vireo*] *huttoni* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 12, part.

[*Vireo*] *huttonii* COUES, Key N. Am. Birds, 1872, 123, part.

[*Vireo*] *huttoni* COUES, Key N. Am. Birds, 2d ed., 1884, 334, part.—RIDGWAY, Man. N. Am. Birds, 1887, 477, part.

Vireosylva huttoni SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 548 (alpine reg. Vera Cruz).

Vireo huttoni stephensi (not of Brewster) CHAPMAN, Bull. Am. Mus. N. H., x, 1898, 40 (Las Vigas, Vera Cruz, breeding at 8,000 ft.)

VIREO HUTTONI STEPHENSI Brewster.

STEPHENS' VIREO.

Similar to *V. h. huttoni*, but coloration much paler; wing averaging longer, tarsus decidedly shorter.

Adults (sexes alike).—Pileum, hindneck, back, and scapulars plain dull olive-gray, passing into dull olive-green on rump and upper tail-coverts; wings and tail dusky brownish gray with very pale olive-

^a Ten specimens.

grayish edgings (these more yellowish on secondaries and rectrices, whitish on primaries); middle and greater wing-coverts rather broadly tipped with dull white, producing two distinct bands across wing; broad orbital ring and supraloral streak dull yellowish white, the former interrupted by a dusky grayish spot on upper eyelid; under parts dull yellowish white more or less strongly shaded anteriorly (especially across chest) with dull buffy or olive-buff; bill horn color, the mandible paler; iris brown; legs and feet dusky horn color (bluish gray in life?).

Young.—Similar to the corresponding stage of *V. h. huttoni* but paler.

Adult male.—Length (skins), 106–117 (114.1); wing, 66–72 (68.8); tail, 49.5–54 (51.4); exposed culmen, 9–10 (9.6); tarsus, 18–19 (18.4); middle toe, 9–10.5 (10).^a

Adult female.—Length (skins), 107–120 (114.4); wing, 67–68.5 (67.7); tail, 52–52.5 (52.2); exposed culmen, 9.5–11 (10.1); tarsus, 18.5; middle toe, 9.5–10 (9.8).^b

Southern Arizona (Huachuca, Santa Rita, Chiricahua, and Santa Catalina mountains) to western Texas (Fort Davis, in winter), and southward over northern portion of Mexican plateau, in States of Chihuahua, Durango (El Salto, breeding), Zacatecas (Valparaiso Mountains, November, December; Plateado, September), Mexico (Mount Popocatepetl, February), Coahuila (Sierra Guadalupe, April), Nuevo Leon (Monterey?^c), and Tamaulipas (Miquihuana, breeding).

Vireo huttoni stephensi BREWSTER, Bull. Nutt. Orn. Club, vii, July, 1882, 142 (Chiricahua Mts., Arizona; coll. W. Brewster); Auk, ii, 1885, 197 (Santa Rita Mts., Arizona; descr. young).—RIDGWAY, Bull. Nutt. Orn. Club, vii, 1882, 258.—SCOTT, Auk, ii, 1885, 354 (Santa Catalina Mts., Arizona, Apr.); v, 1888, 32 (Santa Catalina Mts., Apr. 30; Quijotoa range, late Feb.).—AMERICAN ORNITHOLOGISTS' UNION, Check List., 1886, no. 632a, part.—COOKE, Bird Migr. Miss. Val., 1888, 237 (Fort Davis, Texas, winter).—BENDIRE, Proc. U. S. Nat. Mus., x, 1888, 556 (Fort Huachuca, Arizona; habits; descr. nest and eggs).—MITCHELL, Auk, xv, 1898, 310 (San Miguel Co., New Mexico, breeding at 8,000 feet).—RHODES, Auk, x, 1893, 239, 241 (crit.).

V[ireo] huttoni stephensi RIDGWAY, Man. N. Am. Birds, 1887, 477, part.

V[ireo] h[uttoni] stephensi BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 399.

Vireo huttoni stephensi REICHENOW and SCHALOW, Journ. für Orn., 1884, 401.

V[ireo] h[uttoni] stevensi COUES, Key N. Am. Birds, 2d ed., 1884, 335.

^a Ten specimens.

^b Five specimens.

^c I am doubtful as to the identification of the specimen from Monterey. It is an old skin in not very good condition, and seems dark enough to be referable to *V. l. mexicanus*, but the plumage may be adventitiously soiled. At any rate, the locality is decidedly to the northward of Miquihuana, Tamaulipas, where breeding specimens certainly referable to the present form have been taken.

VIREO HUTTONI COGNATUS, new subspecies.^a

FRAZAR'S VIREO.

Similar to *V. h. stephensi*, but wing averaging decidedly shorter, tarsus longer, and coloration paler. Adults with olive-gray of upper parts slightly paler and greenish olive of rump and upper tail-coverts much less pronounced; under parts whiter, the chest, etc., much less strongly tinged with olive-buff. Young with under tail-coverts, anal region and lower abdomen much less strongly tinged with buff.

Adult male.—Length (skins), 110–115 (112.9); wing, 63–66 (64.8); tail, 50–52 (51.1); exposed culmen, 10–10.5 (10); tarsus, 18.5–20 (19.1); middle toe, 10–11 (10.6).^b

Adult female.—Length (skins), 109–117 (112.4); wing, 62–64 (62.9); tail, 48.5–51 (50.1); exposed culmen, 9.5–10.5 (10); tarsus, 19; middle toe, 10–10.5 (10.3).^c

Cape San Lucas district of Lower California (Sierra de la Laguna; Victoria Mountains); resident.

Vireo huttoni stephensi (not of Brewster, 1882) BELDING, Proc. U. S. Nat. Mus., vi, 1883, 347 (Victoria Mts., Lower California, at 3,000 ft.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 632a, part.—BRYANT (W. E.), Proc. Calif. Ac. Sci., 2d ser., ii, 1889, 307 (Victoria Mts.).—BREWSTER, Bull. Mus. Comp. Zool., xlf, no. 1, 1902, 176 (San José del Rancho, Sierra de la Laguna, Triunfo, etc.; crit.).

V[ireo] huttoni stephensi RIDGWAY, Man. N. Am. Birds, 1887, 477, part.

VIREO CARMIOLI Baird.

CARMIOL'S VIREO.

Adults (sexes alike).—Above plain greenish olive or dull olive-green, the wings and tail dull grayish black or dusky, with pale olive edgings; middle and greater wing-coverts broadly tipped with pale yellow (pale sulphur or primrose), producing two broad bands across wing, and tertials broadly edged with the same; superciliary stripe (extending to but little beyond eye), and lower eyelid pale sulphur or primrose yellow, usually more whitish anteriorly; a dusky anteorbital spot, passing into grayish toward rictus; auricular region, suborbital region (except lower eyelid), malar region, and sides of neck light olive or greenish olive; chin and upper throat dull whitish tinged with olive-yellowish; rest of under parts sulphur yellow, tinged on sides and flanks with yellowish olive; axillars and under wing-coverts sulphur yellow; maxilla dark horn color; mandible paler; iris brown; legs and feet dusky in dried skins (bluish gray or grayish blue in life ?).

^a Type, no. 15527, coll. William Brewster, adult male, Sierra de la Laguna, Lower California, May 5, 1887; M. Abbott Frazar.

^b Ten specimens.

^c Seven specimens.

Young.—Above wood brown or isabella color, the wings and tail as in adults; below pale buffy yellow (straw yellow or primrose).

Adult male.—Length (skins), 107–115 (112.3); wing, 64–67.5 (66); tail, 45–51 (48.5); exposed culmen, 9–11 (9.7); tarsus, 19; middle toe, 10–11 (10.5).^a

Adult female.—Length (skin), 109; wing, 63.5; tail, 48; exposed culmen, 10; tarsus, 18.5; middle toe, 10.^b

Highlands of Costa Rica (Dota; Pirris; Volcan de Irazú) and Chiriqui (Volcan de Chiriqui; Boquete).

Vireo carmioli BAIRD, Review Am. Birds, May, 1866, 356 (Dota Mts., Costa Rica; coll. U. S. Nat. Mus.).—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 97 (Dota Mts.).—FRANTZIUS, Journ. für Orn., 1869, 295 (Costa Rica).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1881, 203, pl. 12, fig. 3 (Dota Mts. and Volcan de Irazú, Costa Rica; Volcan de Chiriqui, Veragua).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 303.—ZELEDON, Anal. Mus. Nac. Costa Rica, i, 1887, 108 (Costa Rica).

Vireo carmioli? RIDGWAY, Proc. U. S. Nat. Mus., vi, 1884, 411 (Pirris, Costa Rica; descr.; crit.).

[*Vireo*] *carmioli* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 12.

[*Vireo*] *carmioli* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 383.

Vireo supercilialis "Ridgway, MS." CHERRIE, Proc. U. S. Nat. Mus., xiv, no. 855, Sept. 4, 1891, 340, in text (Pirris, s. w. Costa Rica; coll. U. S. Nat. Mus. i.

VIREO MODESTUS Sclater.

JAMAICAN VIREO.

Adults (sexes alike).—Above plain greenish olive or grayish olive-green; wings and tail dusky, with pale olive or olive-green edgings, the middle and greater wing-coverts tipped with pale olive-yellow or dull yellowish white, forming two distinct bands across wing; sides of head and neck similar in color to pileum, back, etc., gradually becoming paler toward throat, which, with chin and upper portion of lores, are very pale yellowish olive-gray; rest of under parts very pale olive-yellowish or straw yellow, the sides and flanks strongly washed with pale greenish olive; axillars and under wing-coverts primrose yellow, the latter more whitish; inner webs of remiges broadly edged with white; maxilla horn brownish, darker at tip; mandible pale brownish (in dried skins); iris white; legs and feet dusky in dried skins, "lead blue, soles light orange"^c in life.

Young (after first molt).—Similar to adults, as described above, but upper parts more browish olive and under parts of body more buffy yellowish (pale maize yellow).

Adult male.—Length (skins), 100–117 (108.3); wing, 56–58 (56.5); tail, 44–50 (47.6); exposed culmen, 8.5–9.5 (8.9); tarsus, 17–19.5 (18.6); middle toe, 10–11.5 (10–8).^d

^a Three specimens.

^b One specimen.

^c A. Newton, on label.

^d Seven specimens.

Adult female.—Length (skins), 111–112 (111.5); wing, 56–57 (56.3); tail, 49–50 (49.5); exposed culmen, 9–9.5 (9.2); tarsus, 18–19 (18.7); middle toe, 10–10.5 (10.2).^a

Island of Jamaica, Greater Antilles.

Vireo noveboracensis (not *Muscicapa noveboracensis* Gmelin) GOSSE, Birds Jamaica, 1847, 192.

Vireo modestus SCLATER, Proc. Zool. Soc. Lond., 1860, 462 (Jamaica; coll. P. L. Sclater); 1861, 72, pl. 14, fig. 1; Cat. Am. Birds, 1862, 43.—ALBRECHT, Journ. für Orn., 1862, 194.—MARCH, Proc. Ac. Nat. Sci. Phila., 1863, 294.—BAIRD, Review Am. Birds, 1866, 362.—GADOW, Cat. Birds Brit. Mus., viii, 1883, 303.—CORY, Auk, iii, 1886, 187 (synonymy and diagnosis); Birds W. I., 1889, 74 (do.); Cat. W. I. Birds, 1892, 17, 116, 130.—FIELD, Auk, xi, 1894, 127 (descr. nest).

[*Vireo*] *modestus* GRAY, Hand-list, i, 1869, 382, no. 5772.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 12.—CORY, List Birds W. I., 1885, 10.

V[*vireo*] *modestus* NEWTON (A. and E.), Handb. Jamaica, 1881, 106.

VIREO HYPOCHRYSEUS HYPOCHRYSEUS Sclater.

GOLDEN VIREO.

Adults (sexes alike).—Above plain yellowish olive-green (the occiput, hindneck, and back tinged with gray in midsummer plumage); wings and tail dark brownish gray or hair brown with light yellowish olive-green edgings, these becoming pale gray or grayish white on longer primaries; broad superciliary stripe, sides of head below eyes and upper portion of auricular region, and entire under parts, including axillars and under wing-coverts, yellow (lemon or canary), the chest very faintly, the sides and flanks more strongly, tinged with pale olive-green; maxilla horn color, mandible paler; legs and feet horn color or dusky (in dried skins).

Adult male.—Length (skins), 118–132 (126.9); wing, 63–65.5 (64.5); tail, 55–57 (56); exposed culmen, 12–13 (12.5); tarsus, 17.5–19 (18.3); middle toe, 10–11 (10.7).^b

Adult female.—Length (skins), 119–127 (123.2); wing, 58–63 (61.6); tail, 54–57 (55); exposed culmen, 12; tarsus, 18–18.5 (18.1); middle toe, 10.5–11 (10.9).^c

Western Mexico, in States of Chihuahua (Hacienda de San Rafael), Sinaloa (Plomosas; Rosario), Jalisco (Barranca Ibarra; San Sebastian), and Oaxaca (Quiotepec).

Vireo hypochryseus SCLATER, Proc. Zool. Soc. Lond., 1862, 369, pl. 46 (Mexico; coll. P. L. Sclater).—BAIRD, Review Am. Birds, 1866, 370, part.—LAWRENCE, Bull. U. S. Nat. Mus., no. 4, 1876, 18 (Quiotepec, Oaxaca, Aug.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1881, 204, part.—GADOW, Cat. Birds Brit. Mus., viii, 1883, 304, part.—LOOMIS, Auk, xix, 1902, 88 (Rosario, Sinaloa).

^a Three specimens.

^b Seven specimens.

^c Five specimens.

[*Vireo*] *hypochryseus* GRAY, Hand-list, i, 1869, 382, no. 5778, part.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 12, part.

V[*ireo*] *hypochryseus* RIDGWAY, Man. N. Am. Birds, 1887, 478, part.

VIREO HYPOCHRYSEUS SORDIDUS Nelson.

TRES MARIAS VIREO.

Similar to *V. h. hypochryseus*, but larger and much duller in color; upper parts much duller and more grayish olive-green; under parts paler and more olivaceous yellow.

Adult male.—Length (skins), 132–141 (138); wing, 65–68 (66.6); tail, 57–62 (59.7); exposed culmen, 13–14 (13.4); tarsus, 20–21 (20.2); middle toe, 11.^a

Adult female.—Length (skins), 132–142 (134.5); wing, 64–65 (64.7); tail, 58–60 (59.2); exposed culmen, 13–14 (13.3); tarsus, 20; middle toe, 11.^b

Tres Marias Islands, western Mexico.

Vireo hypochryseus (not of Sclater) BAIRD, Review Am. Birds, 1866, 370, part (Tres Marias Islands).—GRAYSON, Proc. Bost. Soc. N. H., xiv, 1871, 281 (Tres Marias).—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 272 (Tres Marias).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1881, 204, part (Tres Marias).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 304, part (Tres Marias).

[*Vireo*] *hypochryseus* GRAY, Hand-list, i, 1869, 382, no. 5778, part (Tres Marias).—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 12, part.

V[*ireo*] *hypochryseus* RIDGWAY, Man. N. Am. Birds, 1887, 478, part.

Vireo hypochryseus sordidus NELSON, Proc. Biol. Soc. Wash., xii, Jan. 27, 1898, 10 (Maria Madre I., Tres Marias; coll. U. S. Nat. Mus.); North Am. Fauna, no. 14, 1899, 54 (do.).

VIREO VICINIOR Coues.

GRAY VIREO.

Adults (sexes alike).—Above, including auricular region, plain gray (between slate-gray and mouse gray), slightly tinged with olive-green on rump and upper tail-coverts; wings and tail grayish dusky with pale gray edgings, these broader and whitish on tertials and outermost rectrices, the latter broadly margined all around with white (except in worn plumage); greater wing-coverts tipped with pale gray or grayish white, but this not forming a distinct or sharply defined band; lores pale gray or grayish white; orbital ring white or grayish white; malar and suborbital regions pale gray; under parts dull white, or grayish white, the anterior half (chin, throat, and chest) more tinged with grayish, becoming strongly so on lateral portions and on sides of breast; sides and flanks tinged with olive (especially in fresh plumage); white of abdomen, etc., faintly tinged with sulphur yellow in fresh plumage; axillars and under wing-coverts white, faintly tinged with sulphur yellow; inner webs of remiges rather indistinctly edged with

^a Six specimens.

^b Four specimens.

pale gray; maxilla dusky with paler tomia; mandible paler (grayish blue or bluish gray in life); iris brown; legs and feet dusky in dried skins, grayish blue or bluish gray in life.

Young.—Texture of plumage looser and much softer than in adults; coloration similar, but the gray of upper parts slightly more brownish, white of under parts purer, and pale edgings to remiges and rectrices and tips of greater coverts tinged with pale olive.

Adult male.—Length (skins), 120–129 (125.2); wing, 62–67 (64.8); tail, 58–61 (58.5); exposed culmen, 9–10 (9.4); tarsus, 18.5–20 (19.1); middle toe, 10–10.5 (10.1).^a

Adult female.—Length (skins), 120–125 (122.1); wing, 61–64 (62.5); tail, 55–59 (57.2); exposed culmen, 9–11 (9.8); tarsus 18.5–20 (19.1); middle toe, 10–11 (10.6).^b

Southern California, in San Bernardino, Riverside, and San Diego counties, southern Nevada (Grapevine Mountains), Arizona and New Mexico, to western Texas;^c southward into northwestern Mexico (Guaymas, Sonora) and to Cape district of Lower California (Triunfo, April; San José del Cabo, November).

Vireo vicinior COUES, Proc. Ac. Nat. Sci. Phila., 1866, 75 (Fort Whipple, Arizona; coll. U. S. Nat. Mus.); Check List, 1873, no. 128; 2d ed., 1882, no. 180; Birds Col. Val., 1878, 517.—BAIRD, Review Am. Birds, 1866, 361.—COOPER, Am. Nat., iii, 1869, 479; Orn. Cal., 1870, 125 (Arizona).—ELLIOT, Illustr. New and Unfig. N. Am. Birds, pt. i, 1869, pl. 7.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 393, pl. 17, fig. 7.—HENSHAW, List Birds Arizona, 1875, 157; Zool. Exp. W. 100th Merid., 1875, 227 (Colorado Chiquito, New Mexico; Camp Bowie and Camp Lowell, Arizona; habits, song, etc.).—STEPHENS, Bull. Nutt. Orn. Club, iii, 1878, 42 (mountains of San Diego Co., California, 3,000 ft. up to pine belt), 93 (Gila R., New Mexico); Bull. Ridgway Orn. Club, no. 2, 1887, 51 (Cajon Pass, s. California, breeding).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 147.—BREWSTER, Bull. Nutt. Orn.

^a Twelve specimens.

^b Eleven specimens.

Specimens from separate geographic areas average, respectively, as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Ten adult males from Arizona	64.8	58.6	9.3	19	10
One adult male from southern California	67	58	10	19	10.5
One adult male from Cape San Lucas	63	58	10	20	10.5
FEMALES.					
Nine adult females from Arizona	62.3	57.3	9.8	19.2	10.6
Two adult females from southern California	63.2	56.5	9.8	19.2	10.5

Measurements of the few specimens examined from southern California and the Cape district are exactly matched by those of individuals in the Arizona series, and I am unable to appreciate the minutest difference in coloration.

^cAccording to American Ornithologists' Union Check List.

- Club, vii, 1882, 145 (Tucson, Arizona, Apr. 26; measurements, etc.); Bull. Mus. Comp. Zool., xli, 1902, 177 (Triunfo, Lower California, 1 spec., Apr., San José del Cabo, 1 spec., Nov. 10).—BELDING, Proc. U. S. Nat. Mus., vi, 1883, 343 (Guaymas, Sonora).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 300.—SCOTT, Auk, ii, 1885, 321-326 (full biography).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 634.—MORCOM, Bull. Ridgw. Orn. Club, no. 2, 1887, 51 (Cajon Pass, s. California, breeding; descr. nest).—COOKE, Bird Migr. Miss. Val., 1888, 237 (w. Texas.).—ANTHONY, Auk, ix, 1892, 367 (Apache, s. w. New Mexico).—FISHER, North Am. Fauna, no. 7, 1893, 117 (Grapevine Mts., s. Nevada).—NEHRING, Our Native Birds, etc., i, 1893, 313.—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 400.
- Vireo vicinior californicus* STEPHENS, Auk, vii, Apr., 1890, 159 (Riverside, s. California; coll. F. Stephens).
- [*Vireo*] *vicinior* GRAY, Hand-list, i, 1869, 381, no. 5755.—COUES, Key N. Am. Birds, 1872, 122.
- [*Vireo*] *vicinior* COUES, Key N. Am. Birds, 2d ed., 1884, 334.—RIDGWAY, Man. N. Am. Birds, 1887, 478.

VIREO NANUS Nelson

DWARF VIREO.

Adult male.—Above plain deep mouse gray, slightly tinged with olive-green, especially on rump and upper tail-coverts; wings and tail dusky with light yellowish olive-green edgings, these pale olive-gray on remiges; middle and greater wing-coverts tipped with grayish white, producing two narrow but rather distinct bands across wing; superciliary stripe, ending a little behind eye, grayish white; rest of sides of head similar in color to pileum but slightly paler; under parts white, faintly shaded with grayish on chest and sides of breast, but not on hinder portion of sides nor on flanks; axillars and under wing-coverts yellowish white; inner webs of remiges and rectrices edged with yellowish white; bill black; legs and feet dusky (in dried skins); length (skin), 98; wing, 53; tail, 43; exposed culmen, 10; tarsus, 17; middle toe, 9.^a

Southwestern Mexico, in State of Michoacan (Querendaro).

Vireo nanus NELSON, Proc. Biol. Soc. Wash., xii, Mar. 24, 1898, 59 (Querendaro, Michoacan; coll. U. S. Nat. Mus.).

VIREO BELLII BELLII Audubon.

BELL'S VIREO.

Adults (sexes alike).—Pileum and hindneck dull grayish brown, sometimes tinged with olive; rest of upper parts dull olive-green or greenish olive, rather brighter on rump and upper tail-coverts; wings and tail deep grayish brown (hair brown) with paler edgings, these more olive-greenish on outer webs of rectrices; middle and greater wing-coverts (except the innermost) tipped with dull whitish, form-

^a Measurements of the type specimens.

ing two more or less distinct bands (more or less obsolete in worn plumage); narrow orbital ring (interrupted at each angle of eye) and supraloral streak dull white; auricular and suborbital regions pale grayish brown or brownish gray; a dusky mark at anterior angle of eye; median under parts dull white, more or less tinged with buffy yellowish, especially on chest, the sides and flanks light olive-yellow; under tail-coverts and axillars pale sulphur yellow; under wing-coverts yellowish white; inner webs of remiges edged with dull yellowish white; maxilla horn brownish, darker terminally; mandible paler brownish (in dried skins); iris brown; legs and feet dusky horn color (bluish gray in life?).

Young.—Much like adults, but pileum and hindneck soft drab, back and scapulars dark drab, under parts nearly pure white, with sides, flanks, and under tail-coverts tinged with sulphur yellow, wing-bands more distinct, and tertials edged with yellowish white or pale sulphur yellow.

Adult male.—Length (skins), 97–113 (106.8); wing, 52–58.5 (55.5); tail, 41.5–46.5 (44.7); exposed culmen, 9–10 (9.8); tarsus, 18–19 (18.6); middle toe, 9.5–10.5 (9.9).^a

Adult female.—Length (skins), 100–109 (104); wing, 53–56.5 (55.1); tail, 44–47 (45.4); exposed culmen, 9–10 (9.9); tarsus, 18–19.5 (18.9); middle toe, 9.5–11 (9.9).^b

Prairie districts of Mississippi Valley, from South Dakota, southern Minnesota, Iowa, northern Illinois, and northwestern Indiana southward to eastern Texas and northern Tamaulipas (Mier; Guerrero); in winter southward over greater part of Mexico, as far as States of Oaxaca (Tehuantepec City; Santa Efigenia), Guerrero (Acapulco), and Jalisco; accidental in Massachusetts.

Vireo bellii AUDUBON, Birds Am., oct. ed., vii, 1844, 333, pl. 485 (Fort Union, Dakota; type in coll. U. S. Nat. Mus.).—CASSIN, Proc. Ac. Nat. Sci. Phila., 1851, 150.—WOODHOUSE, in Rep. Sitgreaves' Expl. Zuffi and Col. R., 1853, 76 (Texas).—HOY, Ann. Rep. Smithsonian Inst. for 1864 (1865), 437 (Missouri).—SCLATER, Cat. Am. Birds, 1862, 42 (Missouri).—BAIRD, Review Am. Birds, 1866, 358 (localities in Kansas, Arkansas, and Texas).—COUES, Check

^a Fifteen specimens.

^b Seven specimens.

Adult males from different localities average, respectively, as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Four adult males from southeastern Illinois (Richland County)	55.7	45.2	10	18.6	9.9
One adult male from Kansas	56	46.5	.....	19	10
Nine adult males from Texas	55.2	44.2	9.9	18.6	9.9
One adult male from Tamaulipas (Guerrero, May 11)	56	46	10	19	10.5

List, 1873, no. 131; Birds N. W., 1874, 101.—RIDGWAY, Am. Nat., vi, 1872, 430 (Richland Co., Illinois, breeding); vii, 1873, 199, in text (do.); Ann. Lyc. N. Y., x, 1874, 370 (Illinois); Proc. U. S. Nat. Mus., iii, 1880, 175; Orn. Illinois, i, 1889, 190.—TRIPPE, Proc. Bost. Soc. N. H., xv, 1873, 236 (Decatur Co., s. Iowa, breeding; habits; notes).—SNOW, Birds Kansas, 1873, 5.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 633, part.—(?) THORNE, Auk, iv, 1887, 264 (Fort Lyon, Colorado).—(?) LLOYD, Auk, iv, 1887, 295 (Concho and Tom Green counties, w. Texas, breeding).—BECKHAM, Proc. U. S. Nat. Mus., x, 1888, 684 (Corpus Christi and San Antonio, Texas, breeding).—PINDAR, Auk, vi, 1889, 315 (Fulton Co., Kentucky, 2 specs., July 16, 1887).—ATTWATER, Auk, ix, 1892, 340 (San Antonio, Texas, breeding).—CARY, Proc. Nebraska Orn. Un., sec. ann. meet., 1901, 46–48 (Neligh, Nebraska; breeding habits).—CARROLL, Auk, xvii, 1900, 347 (Refugio Co., Texas, breeding).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 399, part. [*Vireo bellii* GRAY, Hand-list, i, 1869, 380, no. 5754.—COUES, Key N. Am. Birds, 1872, 123.

V[ireo] bellii RIDGWAY, Man. N. Am. Birds, 1887, 476, part.

Vireo bellii bellii OBERHOLSER, Proc. Biol. Soc. Wash., xvi, Feb. 21, 1903, 17, 18, in text.

Vireo belli BONAPARTE, Consp. Av., i, 1850, 330.—BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 328; Rep. Pacific R. R. Surv., ix, 1858, 337; Cat. N. Am. Birds, 1859, no. 246.—COUES, Ibis, 1865, 158 (Kansas); Am. Nat., vi, 1871, 197; Birds Col. Vol., 1878, 526 (excl. syn. part); Check List, 2d ed., 1882, no. 183.—DRESSER, Ibis, 1865, 481 (San Antonio, Texas, breeding).—BUTCHER, Proc. Ac. Nat. Sci. Phila., 1868, 149 (Laredo, Texas, May to Aug.).—COOPER, Orn. Cal., 1870, 123 (e. Texas, etc.).—ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 176 (e. and mid. Kansas); Am. Nat., vii, 1873, 363 (Mahaska Co., Iowa).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 389, pl. 17, fig. 13.—AMES, Bull. Minn. Acad. Sci., 1874, 57 (Minnesota?).—NELSON, Bull. Nutt. Orn. Club, i, 1876, 42 (Richland Co., Illinois, Aug. 9 to 15; Chicago, June); Bull. Essex Inst., ix, 1877, 48 (Richland Co., common).—LAWRENCE, Bull. U. S. Nat. Mus., no. 4, 1876, 18 (Santa Efigenia and Tehuantepec City, Oaxaca; Oct.; Dec.).—SENNETT, Bull. U. S. Geol. and Geog. Surv. Terr., iv., 1878, 16 (Hidalgo, Texas, May 8); v, 1879, 389 (Lomita, Texas, Apr. 26 and May 10).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 145.—NEHRLING, Bull. Nutt. Orn. Club, vii, 1882, 11, s. e. Texas, breeding); Our Native Birds, etc., i, 1893, 309.—SALVIN and GODMAN, Biol. Centr.-Am., Aves., i, 1881, 200 (Santa Efigenia and Tehuantepec City, Oaxaca).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 301.—HANCOCK, Bull. Ridgw. Orn. Club, no. 2, 1887, 20 (Corpus Christi, Texas, breeding).—COOKE, Bird Migr. Miss. Val., 1888, 237, part (localities and dates).—CHAPMAN, Bull. Am. Mus. N. H., iii, 1890, 327 (Corpus Christi, breeding).—BREWSTER, Auk, xviii, 1901, 274 (Durham, Massachusetts, 1 spec., Nov. 19, 1897).

V[ireo] belli NELSON, Bull. Essex Inst., viii, 1876, 103, 152 (breeding near Chicago).—COUES, Key N. Am. Birds, 2d ed., 1884, 335, part.

VIREO 'BELLII' MEDIUS Oberholser.

TEXAS VIREO.

Similar to *V. b. bellii*, but coloration paler and tail averaging longer; pileum and hindneck brownish gray instead of grayish brown; olive

of back, etc., grayer; under parts whiter, with olive-yellow of sides and flanks much paler; under tail-coverts and axillars white, yellowish white, or very pale sulphur yellow.

Adult male.—Length (skins), 100–112 (105.8); wing, 53–55.5 (54.2); tail, 45–47 (46.2); exposed culmen, 9–10 (9.6); tarsus, 18–19 (18.7); middle toe, 9.5–10 (9.7).^a

Adult female.—Length (skins), 100–110 (105); wing, 53.5–56 (54.5); tail, 45–48 (46.5); exposed culmen, 9.5–10 (9.8); tarsus, 18.5–19 (18.7); middle toe, 9.5–10 (9.7).^b

Southwestern Texas, in Presidio, Brewster, and Kinney counties, and southward into central Mexico, in States of Coahuila (Monclova) and Guanajuato.

Vireo bellii (not of Audubon) AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 633, part.—(?) LLOYD, Auk, iv, 1887, 295 (Concho and Tom Green counties, w. Texas, breeding).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 399, part.

V[ireo] bellii RIDGWAY, Man. N. Am. Birds, 1887, 476, part.

Vireo belli BAIRD, Rep. U. S. and Mex. Bound. Surv., ii, pt. 2, 1859, 12 (w. Texas).—COOKE, Bird Migr. Miss. Val., 1888, 237, part.

Vireo bellii medius OBERHOLSER, Proc. Biol. Soc. Wash., xvi, Feb. 21, 1903, 17 (Boquillas, s. w. Texas; coll. U. S. Nat. Mus.).

VIREO BELLII ARIZONÆ, new subspecies.^c

ARIZONA VIREO.

Similar to *V. b. medius*, but still paler and grayer, the back and scapulars brownish gray, like pileum and hindneck, the sides and flanks faintly washed with more grayish olive-yellow; tail and tarsus decidedly longer. Young with under parts pure white, the sides, flanks and under tail-coverts tinged with pale sulphur or primrose yellow; pileum and hindneck light pinkish gray, approaching écreu drab; back and scapulars vinaceous-drab.

Adult male.—Length (skins), 104–115 (107.1); wing, 53.5–57 (54.4); tail, 48–54 (50.2); exposed culmen, 9–10 (9.6); tarsus, 18.5–20 (19.4); middle toe, 9.5–10.5 (10.1).^d

Adult female.—Length (skins), 103–110 (107.8); wing, 53–57 (54.7); tail, 49–51.5 (49.9); exposed culmen, 9–10 (9.6); tarsus 18.5–20 (19.1); middle toe, 9.5–10 (9.9).^d

Arizona to western Texas (El Paso; Fort Hancock), and southward into northwestern Mexico, in States of Chihuahua (Casas Grandes, May 29), Sonora, and Sinaloa (near Mazatlan, March 31).

^aSix specimens.

^bThree specimens.

^cType no. 98790, coll. U. S. Nat. Mus., adult male, Tucson, Arizona, Mar. 21, 1884; E. W. Nelson.

^dTen specimens.

- Vireo bellii* (not of Audubon) COOPER, Proc. Calif. Ac. Sci., 1881, 122 (Fort Mojave, Arizona).
- Vireo belli* HENSHAW, Rep. Orn. Spec. Wheeler's Surv. for 1873 (1874), 105 (Gila R., Arizona); Zool. Exp. W. 100th Merid., 1875, 225 (do.); List Birds Arizona, 1875, 157.—COUES, Birds Col. Val., 1878, 526, part (in synonymy).
- Vireo pusillus* (not of Coues, 1866) COUES, Proc. Ac. Nat. Sci. Phila., 1868, 83 (Camp Grant, Arizona); Check List, 1873, no. 132, part; 2d ed., 1882, no. 184, part; Birds Col. Val., 1878, 531, part (Arizona).—BAIRD, Review Am. Birds, 1866, 360, part (Date Creek, Arizona).—COOPER, Orn. Cal., 1870, 124, part (Arizona).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 391, part (Arizona).—HENSHAW, List Birds Arizona, 1875, 157; Zool. Exp. W. 100th Merid., 1875, 226 (Camp Grant, Arizona, July; crit.).—STEPHENS, Bull. Nutt. Orn. Club, iii, 1878, 93 (Gila R., Arizona, breeding).—BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 144 (Tucson, Cienega Station, and Camp Lowell, Arizona; descr. nest; measurements, etc.); Auk, ii, 1885, 197 (Camp Lowell; descr. young).—BELDING, Proc. U. S. Nat. Mus., vi, 1883, 343 (Guaymas, Sonora).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 302, part (Arizona).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 400, part.
- [*Vireo*] *pusillus* COUES, Key N. Am. Birds, 2d ed., 1884, 335, part.—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 478, part.
- Vireo bellii pusillus* RIDGWAY, Proc. U. S. Nat. Mus., viii, Sept. 2, 1885, 354, part.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 633a, part.—OBERHOLSER, Proc. Biol. Soc. Wash., xvi, 1903, 17, 18, in text (part).
- [*Vireo*] *bellii pusillus* RIDGWAY, Man. N. Am. Birds, 1887, 478, part.—(?) МОСКОВ, Bull. Ridgway Orn. Club, no. 2, 1887, 51, part (Fort Yuma, Arizona, breeding).
- Vireo belli pusillus* SCOTT, Auk, v, 1883, 33 (Santa Catalina Mts., etc., s. Arizona, breeding up to 4,000 ft.).

VIREO BELLII PUSILLUS (Coues).

LEAST VIREO.

Similar to *V. b. arizonæ*, but still grayer above and whiter beneath; the upper parts between olive-gray and mouse gray without distinct tinge of greenish olive except on rump and upper tail-coverts (and there obvious only in fresh plumage); under parts nearly pure white, including under tail-coverts, the sides and flanks washed with pale olive-gray or grayish olive, but with only the merest trace of yellow tinge; wing and tail averaging longer. Young with upper parts decidedly paler and grayer, and under parts of body, with under tail-coverts, pure white throughout.

Adult male.—Length (skins), 104–113 (109.7); wing, 52.5–59 (55.4); tail, 47–54 (50.8); exposed culmen, 9–10 (9.4); tarsus, 18–19.5 (19); middle toe, 9.5–10 (9.9).^a

Adult female.—Length (skins), 105–114 (109.9); wing, 53.5–56

^a Eighteen specimens.

(55.2); tail, 48-53 (51.2); exposed culmen, 9-10 (9.6); tarsus, 18-19.5 (18.8); middle toe, 9-10.5 (9.6).^a

Central and southern California and northern Lower California; north to Stockton and Sacramento, east to southwestern Nevada (Ash Meadows); breeding southward to the San Pedro Martir Mountains and San Fernando, Lower California; in winter (only?) southward to the Cape district of Lower California (San José del Cabo, August 30 to November; Triunfo, April; Santa Margarita Island, winter).

Vireo pusillus COUES, Proc. Ac. Nat. Sci. Phila., 1866, 76 (Cape San Lucas, Lower California; coll. U. S. Nat. Mus.); Check List, 1873, no. 132, part; 2d ed., 1882, no. 184, part; Birds Col. Val., 1878, 531, part.—BAIRD, Review Am. Birds, 1866, 360, part (Cape San Lucas, San José, and Sierra San Gertrude, Lower California; San Diego, California).—COOPER, Am. Nat., iii, 1869, 186 (near San Diego); Orn. Cal., 1870, 124, part (San Diego; Sacramento; Cape San Lucas).—ELLIOT, Illustr. New and Unfig. N. Am. Birds, pt. i, 1869, pl. 7.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 391, part, pl. 17, fig. 14; iii, 1874, 507 (San Buenaventura, California; descr. nest and eggs).—RIDGWAY, Bull. Essex Inst., vi, 1874, 171 (Sacramento, California, June); Orn. 40th Parallel, 1877, 451 (do.); Nom. N. Am. Birds, 1881, no. 146, part.—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1876, 236 (Los Angeles, June; Santa Barbara, July; Fort Tejon, Aug.).—BELDING, Proc. U. S. Nat. Mus., i, 1879, 410 (Stockton, etc., California; habits); v, 1883, 537 (La Paz, Lower California).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 302, part.—BREWSTER, Bull. Mus. Comp. Zool., xli, 1902, 176 (Cape district, Lower California, autumn, winter, and spring).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 400, part.

V[ireo] pusillus COOPER, Am. Nat., viii, 1874, 17, in text (Cuyamaca Mts., San Diego Co., California).

Vireo bellii pusillus RIDGWAY, Proc. U. S. Nat. Mus., viii, Sept. 2, 1885, 354, part.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 633a, part.—EVERMANN, Auk, iii, 1886, 184 (Ventura Co., California, Jan.).—MORCOM, Bull. Ridgway Orn. Club, no. 2, 1887, 51, part (Cahuilla Valley and San Bernardino, s. California).—GRINNELL (J.), Pub. ii, Pasadena Ac. Sci., 1898, 44 (Los Angeles Co., California; summer resid. in lowlands and foothills).—OBERHOLSER, Proc. Biol. Soc. Wash., xvi, 1903, 17, 18, in text (part).

V[ireo] bellii pusillus RIDGWAY, Man. N. Am. Birds, 1887, 478, part.

^a Eight specimens.

Californian specimens compare in average measurements with those from the Cape district of Lower California as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Eight adult males from Cape district.....	55.4	50.1	9.4	19	9.7
Ten adult males from California.....	55.4	51.2	9.4	18.9	9.9
FEMALES.					
Three adult females from Cape district.....	55.2	50.7	9.3	19	9.8
Five adult females from California.....	55.2	51.6	9.7	18.7	9.5

There seems to be no difference in coloration between the two series.

[*Vireo*] *pusillus* GRAY, Hand-list, i, 1869, 381, no. 5756, part.—COUES, Key N. Am. Birds, 1872, 124, part.

[*Vireo*] *pusillus* COUES, Key N. Am. Birds, 2d ed., 1884, 335, part.—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 478, part.

Vireo pusillus albatrus GRINNELL (J.), Condor, iii, Nov., 1901, 187 (Pasadena, Los Angeles Co., California; coll. J. Grinnell); Pacific Coast Avifauna, no. 3, 1902, 63.

VIREO LATIMERI Baird.

LATIMER'S VIREO.

Adults (sexes alike).—Pileum and hindneck plain grayish brown (hair brown to broccoli brown), the auricular region and sides of neck similar but paler; back, scapulars, rump, upper tail-coverts, and lesser wing-coverts plain brownish olive or olive-brown, in marked contrast with the grayish brown of hindneck; wings (except lesser coverts) and tail grayish brown with light olive-greenish edgings, some of the greater wing-coverts with pale yellow or olive-yellow tips, not, however, forming a distinct band; lores grayish white or pale gray, becoming white, or nearly so, along upper margin and dusky at anterior angle of eye; eyelids white; suborbital and malar regions pale gray; chin, throat, and upper chest dull white or grayish white; rest of under parts very pale yellow (primrose) or yellowish white, deepening into straw yellow or maize yellow on sides and flanks; axillars and under wing-coverts clear primrose yellow; inner webs of remiges narrowly edged with white; maxilla brown, with paler tomia; mandible pale brownish (in dried skins); legs and feet dusky in dried skins (grayish blue in life?).

Young (first plumage).—Pileum and hindneck isabella color or between that and broccoli brown; back, scapulars, rump, upper tail-coverts, and lesser wing-coverts wood brown or deep isabella color; wings (except lesser coverts) and tail as in adults, but middle and greater wing-coverts tipped with light cinnamon or dull buffy, producing two indistinct bands across wing; under parts white, changing to pale olive-yellow on flanks and under tail-coverts.

Adult male.—Length (skins), 106–110 (107.6); wing, 56–57 (56.8); tail, 45–48 (46.2); exposed culmen, 10.5–12 (11.4); tarsus, 19–19.5 (19.2); middle toe, 10–11 (10.7).^a

Adult female.—Length (skins), 106–110 (109.4); wing, 57–58 (57.6); tail, 44–47 (46.2); exposed culmen, 11–12 (11.3); tarsus, 19–20 (19.6); middle toe, 10.5–11 (10.8).^a

Island of Porto Rico, Greater Antilles.

Vireo latimeri BAIRD, Review Am. Birds, May, 1866, 364 (Porto Rico, north side, Greater Antilles; coll. U. S. Nat. Mus.).—BRYANT, Proc. Bost. Soc., x, 1866, 252.—GUNDLACH, Anal. Soc. Esp. Hist. Nat., vii, 1878, 135; Journ. für Orn., 1878, 158.—GADOW, Cat. Birds Brit. Mus., viii, 1883, 304.—CORY, Auk, iii,

^a Five specimens.

1886, 187 (synonymy and diagnosis); Birds W. I., 1889, 74 (do.); Cat. W. I. Birds, 1892, 17, 116, 132.—BOWDISH, Auk, xx, 1903, 16 (habits; song, etc.). [*Vireo*] *latimeri* GRAY, Hand-list, i, 1869, 383, no. 5773.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 12.—CORY, List Birds W. I., 1885, 10.

Genus NEOCHLOE Sclater.

Neochloe SCLATER, Proc. Zool. Soc. Lond., 1857, 213. (Type, *N. brevipennis* Sclater.)

Small Vireonidæ (wing less than 60 mm.), similar to *Vireo* in details of form, but tail strongly rounded and coloration very different, the back, rump, throat, chest, and sides being uniform slate-gray, in strong contrast with bright olive-green of pileum, wings, and tail.

Bill small, relatively deep and compressed terminally, rather broad and depressed basally; exposed culmen not more than half as long as tarsus, gradually but strongly curved from near base, the tip of maxilla moderately uncinatè; depth of bill at frontal antiæ about equal to its width at same point, but at base of gonys decidedly greater than its width at same place; gonys about equal to distance from nostril to tip of maxilla, decidedly convex; maxillary tomium nearly straight, distinctly notched subterminally, the straight mandibular tomium with a corresponding very minute notch. Nostril oval, longitudinal or slightly oblique, in lower anterior portion of nasal fossæ, posteriorly in contact with bristly antrorse feathers of frontal antiæ, the longer of which extend over and beyond nostril. Rictal bristles long, extending beyond nostrils, at least three in number. Wing short and much rounded; tenth primary about half as long as ninth, or a little more, the ninth much shorter than secondaries; sixth, fifth, and fourth primaries longest and nearly equal, the eighth shorter than third, and seventh about equal to fourth; wing-tip about equal to exposed culmen, or slightly longer. Tail nearly as long as wing,^a considerably rounded (graduation about equal to length of maxilla from nostril). Tarsus long and slender (slightly more than one-third as long as wing and more than twice as long as exposed culmen), distinctly scutellate anteriorly; outer toe distinctly longer than inner, the latter (without claw) apparently shorter^b than hallux (without claw), its claw not reaching to base of middle claw.

Coloration.—Uniform slate color or slate-gray, with pileum, hind-

^a According to Professor Baird (Review Am. Birds, pp. 371, 372) the tail is longer than the wing. This is true if the tail is measured to the base of the coccyx, but if the measurement is made to the end of the coccyx, between bases of the two middle rectrices, as is done throughout the present work, the tail is then found to be shorter than the wing. In fact, several species of *Vireo* have the tail relatively quite as long, and the wing quite as short and rounded, as *Neochloe*.

^b The toes of the single specimen examined have dried in such way that it is very difficult to determine their relative length.

neck, wings, and tail bright olive-green, edge of wing yellow, chin and abdomen white.

Range.—Mountains of southeastern Mexico. (Monotypic.)

In structural characters this genus comes very close to *Vireo*, the bill being almost exactly as in *V. huttoni*, while *V. hypochryseus* has the wing almost equally rounded. The tail, however, is considerably more rounded than in any species of *Vireo*, and this character, together with the remarkable coloration (entirely different from that of any other member of the family and strongly suggesting that of *Ptilogonys*), may suffice to separate the single known species generically.

NEOCHLOE BREVIPENNIS Sclater.

GREEN-WINGED VIREO.

Adult male.—Pileum, outer surface of wings, and broad edging to outer web of rectrices clear olive-green, brighter and more yellowish on wings and tail; inner webs and proximal portion of outer webs of remiges and rectrices dull black or blackish slate, the inner webs of remiges edged with pale gray or grayish white; edge of wing canary yellow; under wing-coverts paler yellow or yellowish white; axillars mostly grayish; chin, lower breast, abdomen, and under tail-coverts white; lores blackish; rest of plumage, including sides of head and neck, throat, chest, upper breast, sides, flanks, back, scapulars, rump, and upper tail-coverts uniform slate-color, the rump and upper tail-coverts slightly tinged with olive-green; bill, legs, and feet black (in dried skin); length (skin), 117; wing, 58.5; tail, 56.5; exposed culmen, 9; tarsus, 19; middle toe, 11.⁴

Eastern Mexico, in mountains of Vera Cruz (Orizaba; Jalapa).

Neochloe brevipennis SCLATER, Proc. Zool. Soc. Lond., 1857, 213 (Orizaba, Vera Cruz; coll. Brit. Mus.).—BAIRD, Review Am. Birds, 1866, 372 (Orizaba).—SUMICHRIST, Mem. Bost. Soc. N. H., i, 1869, 547 (temperate region of Orizaba).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1881, 205, pl. 13, fig. 2 (Orizaba and Jalapa, Vera Cruz).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 305 (Orizaba).—CHAPMAN, Bull. Am. Mus. N. H., x, 1898, 26 (Jalapa, Vera Cruz; habits; notes).

[*Neochloe*] *brevipennis* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 12.

Genus LALETES Sclater.

Laletes SCLATER, Proc. Zool. Soc. Lond., 1861, 72. (Type. *L. osburni* Sclater.)

Rather large Vireonidae (wing about 72 mm.) resembling the more plainly colored species of *Vireo*, but with the bill relatively deeper and

^a One specimen (no. 68582, coll. Am. Mus. Nat. Hist.), from Jalapa, Vera Cruz, altitude 4,400 feet, Apr. 11, 1897, F. M. Chapman. An adult (sex not determined) in the National Museum collection (no. 38163), from Orizaba, Vera Cruz (M. Botteri, collector), measures as follows: Wing, 57; exposed culmen, 9; tarsus, 20; middle toe, 11. The tail is defective.

more compressed (its depth at frontal antiæ decidedly greater than its width at the same point), and with the sides of the maxilla finely grooved^a longitudinally.

Bill rather large and strong, decidedly compressed, with culmen strongly curved and tip of maxilla distinctly uncinatè; exposed culmen decidedly more than half as long as tarsus; gonys equal to distance from nostril to tip of maxilla, strongly convex; maxillary tomium straight, distinctly notched subterminally, the straight mandibular tomium with a slight corresponding notch, but tip of mandible not distinctly produced, its point obtuse; depth of bill at frontal antiæ slightly greater than its width at same point; sides of maxilla with several fine longitudinal grooves.^a Nostril exposed, longitudinally ovate, in lower anterior portion of nasal fossæ, its posterior end scarcely touched by feathering of frontal antiæ, the latter bristle-tipped, with the fine, curved bristles extending across nostrils. Rictal bristles inconspicuous (apparently only two distinct). Wing moderately long, rounded; tenth primary about half as long as ninth, the latter slightly shorter than secondaries; seventh, sixth, and fifth primaries longest, the eighth shorter than fourth. Tail shorter than wing (the difference less than length of tarsus), slightly rounded. Tarsus less than one-third but more than one-fourth as long as wing, decidedly longer than commissure, much longer than middle toe with claw, distinctly scutellate anteriorly; outer toe distinctly longer than inner, the latter (without claw) nearly or quite as long as hallux (without claw), its claw not reaching to base of middle claw.

Coloration.—Above plain olive, rather grayer on the head; beneath plain yellowish buff, shaded with olive on chest.

Range.—Island of Jamaica, Greater Antilles. (Monotypic.)

This genus is decidedly nearer to *Vireo* than to *Cyclarhis*; so nearly like the former, in fact, that if *Vireosylva* and *Lanivireo* be not recognized as genera *Laletes* certainly should not.

LALETES OSBURNI Sclater.

OSBURN'S VIREO.

Adult male.—Pileum and hindneck plain brownish mouse gray or grayish hair brown; rest of upper parts similar but more olive, the rump inclining to grayish olive-green, the edges of remiges paler; sides of head light olive-grayish; malar region, chin, and throat olive-whitish; rest of under parts pale buffy yellow (between straw yellow and naples yellow), the sides of chest strongly, the sides and flanks faintly, shaded with olive; under wing-coverts primrose yellow; bill dusky (bluish gray or grayish blue in life?) the terminal third (more or less) pale brownish (in dried skins); legs and feet light brown (in

^a This character possibly not constant.

dried skins); length (skin), 135; wing, 72; tail, 58; exposed culmen, 13; depth of bill at nostrils, 6; tarsus, 21; middle toe, 14.^a

Island of Jamaica, Greater Antilles.

Laletes osburni SCLATER, Proc. Zool. Soc. Lond., 1861, 72, pl. 14, fig. 2 (Jamaica; type in coll. U. S. Nat. Mus.); Cat. Am. Birds, 1862, 359.—ALBRECHT, Journ. für Orn., 1862, 195.—GADOW, Cat. Birds Brit. Mus., viii, 1883, 313.—CORY, Auk, iii, 1886, 190 (synonymy and diagnosis); Birds W. I., 1889, 77 (do.); Cat. W. I. Birds, 1892, 17, 116, 130.

[*Laletes*] *osburni* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 12.—CORY, List Birds W. I., 1885, 10.

L[aletes] osburni NEWTON (A. and E.), Handb. Jamaica, 1881, 106.

Laletes osburnii BAIRD, Review Am. Birds, 1866, 383 (Trelawney, Jamaica).

[*Cyclarhis*] *osburnii* GRAY, Hand-list, i, 1869, 384, no. 5818.

Genus PACHYSYLVA Bonaparte.^b

Hylophilus (not *Hylophila* Hübner, 1816) TEMMINCK, Pl. Col., iii, livr. 29, 1823, text to pl. 173, fig. 1. (Type, *H. thoracicus* Temminck.)

Pachysylvia BONAPARTE, Consp. Av., i, 1850, 309. (Type, *Sylvicola decurtata* Bonaparte.)

Small Vireonidæ (wing not more than 65 mm.), with rather slender-conoid, slightly uncinatè bill, inner toe (without claw) as long as or longer than hallux (without claw), its claw reaching decidedly beyond base of middle claw; coloration plain and dull.

Bill shorter than head (though sometimes nearly as long), slender-conoid, more tapering terminally than in other Vireonidæ; exposed culmen about two-thirds as long as tarsus, nearly straight to near tip, where gradually and slightly decurved, the tip of maxilla distinctly produced but not strongly uncinatè; gonys shorter than distance from nostril to tip of maxilla (sometimes nearly as long), very slightly convex; depth of bill at frontal antiæ about equal to its width at same point or slightly less. Nostril exposed, longitudinally ovate, in lower anterior portion of nasal fossæ, sometimes narrowly margined anteriorly by membrane, posteriorly in contact, or nearly so, with bristly feathers of frontal antiæ. Rictal bristles indistinct or with only one or two well developed, but either the frontal feathers or those of the malar or mental antiæ (sometimes all) with distinct terminal bristles. Wing moderate, much rounded; tenth primary about half as long as ninth, broad, with rounded tip; ninth primary not longer than secondaries, sometimes decidedly shorter; seventh, sixth, and fifth, or eighth to fifth longest, the eighth usually longer than fourth, sometimes longer than fifth. Tail decidedly, usually much, shorter than wing, the difference varying from more than length of tarsus (*P. decurtata*) to less than half as much (*P. viridiflava*), slightly rounded, the rectrices rather pointed at tips. Tarsus less than one-third to slightly

^aOne specimen.

^bThe fact that *Hylophilus* is preoccupied and can not, therefore, be used for this genus has been brought to my attention by Mr. Harry C. Oberholser.

more than one-third as long as wing, much longer than middle toe with claw, distinctly scutellate anteriorly; outer toe distinctly longer than inner, the latter (without claw) about as long as hallux (without claw), its claw reaching to base of middle claw.

Coloration.—Above plain olive-green or brown, the head grayish olive-green, gray, brown, or russet, the wings and tail also sometimes russet or russet brown (in brown-backed species); beneath mostly pale yellowish or buffy, or grayish white becoming light olive-green on sides and flanks.

Range.—Tropical America except West Indies and Galapagos Archipelago, but including islands of Trinidad and Tobago. (Numerous species.)

KEY TO THE SPECIES AND SUBSPECIES OF *PACHYSYLVA*.^a

- a. Pileum and hindneck gray, in strong contrast with olive-green of back, etc. (Southern Mexico to Isthmus of Panama.) *Pachysylvia decurtata* (p. 216)
- aa. Pileum and hindneck not gray.
 - b. Tail russet; pileum tawny-olive or olive-tawny, the former more yellowish anteriorly; back olive-brown. (*Pachysylvia ochraceiceps*.)
 - c. Chest pale ochraceous-brown. (Southern Mexico to northern Honduras.) *Pachysylvia ochraceiceps ochraceiceps* (p. 218)
 - cc. Chest pale buffy olive. (Southern Honduras to Chiriqui.) *Pachysylvia ochraceiceps pallidipectus* (p. 219)
 - bb. Tail olive-green; pileum brownish or grayish olive; back olive-green or grayish olive.
 - c. Pileum distinctly browner than back, becoming yellowish on anterior portion of forehead. (*Pachysylvia aurantiifrons*.)
 - d. Under parts paler, the chest very slightly, if at all, tinged with buff; smaller, with relatively shorter tarsus (adult male averaging wing 55.9, tail 43.5, exposed culmen 12.1, tarsus 15.7). (Coast district of Colombia, from Santa Marta to Panama.) . . . *Pachysylvia aurantiifrons aurantiifrons* (p. 220)
 - dd. Under parts more brightly colored, the chest distinctly ochraceous or buffy; larger, with relatively longer tarsus (adult male averaging wing 56.5, tail 44.3, exposed culmen 12.6, tarsus 17.1). (Venezuela; Trinidad; Guiana; Brazil.)

Pachysylvia aurantiifrons hypoxantha (extralimital^b)

^a Several extralimital forms are included for the reason that they have been commonly synonymized with Central American species.

^b *Hylophilus hypoxanthus* Pelzeln, Orn. Bras., ii, Abth., 1869, 136 (Rio Içanna and Rio Vaupé, n. Brazil; coll. Vienna Mus.); Sclater and Salvin, Proc. Zool. Soc. Lond., 1868, 627, 629 (San Esteban, Venezuela).—*Hylophilus insularis* (not of Sclater) Léotand, Ois. Trinidad, 1866, 186.—*Hylophilus aurantiifrons* (not of Lawrence) Sclater, Ibis, 1881, 303, part; Gadow, Cat. Birds Brit. Mus., viii, 1883, 310, part; Chapman, Bull. Am. Mus. N. H., vi, 1894, 27 (Trinidad; crit.); Robinson and Richmond, Proc. U. S. Nat. Mus., xxiv, 1901, 177 (San Julian, Venezuela).

I am not entirely satisfied that the Trinidad bird is identical with that of the mainland, having only three specimens of the latter and two of these of doubtful locality. The single specimen of certain locality (from Guanaguana, province of Bermudez, Venezuela) is paler beneath, more as in true *P. aurantiifrons*, and has the pileum duller in color than either the Trinidad specimens or Colombian examples (*P. a. aurantiifrons*). Of Trinidad specimens 22 adults have been examined in the present connection, and these, without a single exception, can be distinguished from any Colombian specimens at a considerable distance by the much deeper coloration of the under parts. I have not seen examples from near the type locality, which is that portion of northern Brazil near the Venezuelan boundary.

- cc. Pileum olive-green or grayish olive, not distinctly, if at all, different from color of back.
- d. Under parts of body distinctly yellowish.
- c. Brighter olive-green above; under parts clear naples or canary yellow, becoming pale grayish or grayish yellow on throat. (Isthmus of Panama, north to Veragua.) *Pachysylvia viridiflava* (p. 221)
- ee. Duller olive-green above, the pileum and back grayish, rather than greenish, olive; under parts very pale buffy yellowish, becoming pale grayish buffy on chest, the throat dull whitish. (Coast district of Colombia, east of Gulf of Uraba.) *Pachysylvia flavipes* (extralimital)^a
- dd. Under parts of body not distinctly yellowish (only the under tail-coverts, under wing-coverts, and inner edges of remiges yellow).
- e. Under parts dull buffy whitish, becoming more grayish on throat, the sides and flanks tinged with olive-yellow. (Margarita Island, Venezuela.) *Pachysylvia griseipes* (extralimital)^b
- ee. Under parts dull pale grayish olive, becoming whitish on abdomen, the sides and flanks tinged with light olive-green.
- f. Smaller (wing 49, tail 45, exposed culmen 10.5, tarsus 17). (Venezuela.)
Pachysylvia acuticauda (extralimital)^c
- ff. Larger (wing 61-63, tail 46, exposed culmen 12-13, tarsus 19-20). (Island of Tobago.) *Pachysylvia insularis* (extralimital)^d

PACHYSYLVIA DECURTATA (Bonaparte).

GRAY-HEADED PACHYSYLVIA.

Adults (sexes alike).—Pileum and hindneck plain gray (mouse gray or deep smoke gray to slate-gray); rest of upper parts plain yellowish olive-green; narrow and rather indistinct supraloral streak and eyelids dull white; lores pale gray or grayish white; auricular region and sides of neck pale buffy gray, the suborbital and malar regions paler; chin and throat dull white or grayish white; median portion of chest and breast, together with abdomen, white or yellowish white, the first sometimes tinged with olive-yellow; sides and flanks light

^a *Hylophilus flavipes* Lafresnaye, Rev. Zool., 1845, 342; Baird, Review Am. Birds, 1865, 375; Selater, Ibis, 1881, 309; Gadow, Cat. Birds Brit. Mus., viii, 1883, 312, part.

^b *Hylophilus griseipes* Richmond, Proc. U. S. Nat. Mus., xviii, no. 1093, Aug. 12, 1896, 678 (Margarita Island, Venezuela; coll. U. S. Nat. Mus.).

^c *Hylophilus acuticauda* Lawrence, Proc. Ac. Nat. Sci. Phila., 1865, 37 (Venezuela; coll. G. N. Lawrence); Baird, Review Am. Birds, 1866, 378; Selater and Salvin, Proc. Zool. Soc. Lond., 1868, 166, 170 (Caracas, Venezuela; crit.).—*Hylophilus acuticauda* Selater and Salvin, Proc. Zool. Soc. Lond., 1869, 252 (Plain of Valencia, Venezuela); Selater, Ibis, 1881, 304 (crit.).—*Hylophilus flavipes acuticauda* Berlepsch and Hartert, Novit. Zool., ix, Apr., 1902, 12 (Altigracia, Caicara, and Ciudad Bolivar, Venezuela; crit.).—*Hylophilus aurantiifrons* Gadow, Cat. Birds Brit. Mus., viii, 1883, 310, part.

This species is evidently the mainland representative of *P. insularis*, from which it differs only in size, the coloration being identical. The type is certainly not a young bird, as suggested by Selater, and it is equally certain that the form is entirely distinct from *P. aurantiifrons*.

^d *Hylophilus insularis* Selater, Proc. Zool. Soc. Lond., 1861, 128 (Tobago; coll. P. L. Selater); Cat. Am. Birds, 1862, 45; Ibis, 1881, 305 (monogr.); Baird, Review Am. Birds, 1865, 379.—*Hylophilus aurantiifrons* Gadow, Cat. Birds Brit. Mus., viii, 1883, 310, part.

yellowish olive-green or olive-yellow; under tail-coverts sulphur yellow; under wing-coverts yellowish white or white, tinged with sulphur yellow; maxilla dusky brown, with paler tomia; mandible pale grayish brown in dried skins (bluish gray in life?); legs and feet horn color in dried skins.

Young (first plumage).—Pileum and hindneck vinaceous-drab; back, scapulars, rump, upper tail-coverts, and wing-coverts similar but browner (between cinnamon and isabella color); under parts white, the sides and flanks tinged with grayish and with traces of yellowish olive; under tail-coverts light olive-yellow; remiges and rectrices as in adults.^a

Adult male.—Length (skins), 87–104 (96.4); wing, 47–57 (53.1); tail, 31–41.5 (36.9); exposed culmen, 10.5–13 (11); tarsus, 16–17 (16.4); middle toe, 8–9 (8.7).^b

Adult female.—Length (skins), 82–102 (95.5); wing, 47–57 (52.3); tail, 30–40.5 (35.9); exposed culmen, 10.5–12 (11.5); tarsus, 16–17.5 (16.7); middle toe, 8–9.5 (8.7).^c

^a The specimen described has partly assumed the adult plumage, but is mainly colored as described above.

^b Eighteen specimens.

^c Eleven specimens.

Examples from different localities average, respectively, as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Four adult males from Vera Cruz and Oaxaca.....	55.2	39.1	11.2	16.6	8.7
Three adult males from Tabasco and Chiapas.....	55.8	41.2	11	16.7	9
Two adult males from Yucatan.....	56	40	11.2	16.7	8.5
One adult male from northern Honduras.....	56		13	17	9
Two adult males from Nicaragua.....	50	32	10.7	16.2	9
Two adult males from Costa Rica.....	49.7	33.3	10.8	16	8.7
One adult male from Chiriqui.....	48.5	35	10.5	16	8
Two adult males from Panama.....	51.2	34.5	11	16	8.7
FEMALES.					
Four adult females from Tabasco.....	52.9	37.9	11.6	17.2	9
One adult female from Yucatan.....	52.5	37	11	16.5	8
Two adult females from Nicaragua.....	48.2	30.5	11	16	8.2
Two adult females from Chiriqui.....	56.5	40	12.2	16.7	8.7
Two adult females from Panama.....	51	32.7	11.2	16.5	9

As a rule specimens from Nicaragua and southward are decidedly smaller than examples from northern Honduras and northward to southern Mexico, and have the coloration slightly duller, the gray of the pileum and hindneck being less clear and less sharply defined against the olive-green of the back, and occasionally slightly tinged with olive-green. Were it not for the two females from Chiriqui, which are quite as large as the largest of that sex from Mexico, the recognition of a smaller southern race would appear to be justified. It is possible the two specimens in question have the sex erroneously determined, since they are both decidedly larger than the single male examined from the same locality.

Southern Mexico, in States of Vera Cruz (Cordova, Buena Vista, Motzorongo), Oaxaca, Tabasco, Yucatan (Puerto Morelos, La Vega), and Chiapas, and southward through Central America to Isthmus of Panama (Panama City, etc.).

Sylvicola decurtata BONAPARTE, Proc. Zool. Soc. Lond., 1837, 118.

[*Pachysylvia*] *decurtata* BONAPARTE, Consp. Av., i, 1850, 309.

Pachysylvia decurtata BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 305.

Hylophilus decurtatus BAIRD, Review Am. Birds, May, 1866, 380 (s. Mexico; Guatemala).—SALVIN, Proc. Zool. Soc. Lond., 1867, 137 (Santa Fé, Veragua; crit.); 1870, 184 (Bugabá, Veragua); 1872, 314 (Chontales, Nicaragua).—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 97 (Costa Rica); Bull. U. S. Nat. Mus., no. 4, 1876, 18 (Chimalapa, Oaxaca).—BOUCARD, Proc. Zool. Soc. Lond., 1878, 53 (San José, Costa Rica).—SCLATER, Ibis, 1881, 298 (monogr.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1881, 206.—NUTTING, Proc. U. S. Nat. Mus., v, 1882, 391 (La Palma de Nicoya, w. Costa Rica).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 307.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, 355 (hypothetical list, no. 19).—ZELEDON, Anal. Mus. Nac. Costa Rica, i, 1887, 108 (Pozo Azul de Pirris, Costa Rica).—RIDGWAY, Proc. U. S. Nat. Mus., x, 1887, 579 (Truxillo, Honduras).—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 487 (Greytown, etc., Nicaragua).—CHERRIE, Anal. Inst. Fis.-Geog. Nac. Costa Rica, vi, 1893, 13 (Rio Naranjo, Costa Rica).

[*Hylophilus*] *decurtatus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 12.

[*Hylophilus*] *decurtatus* RIDGWAY, Man. N. Am. Birds, 1887, 479.

Hylophilus pusillus LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., vii, 1862, 323 (Panama R. R.; coll. G. N. Lawrence); viii, 1865, 180 (Greytown, Nicaragua); ix, 1868, 97 (Dota Mts. and Angostura, Costa Rica).—BAIRD, Review Am. Birds, 1866, 381 (San Juan, Nicaragua; Santa Rosa, Dota, and Angostura, Costa Rica; Panama).

Helinai brevipennis GIRAUD, Ann. Lyc. N. Y., v, 1852, 40, pl. 3, fig. 1 ("Mexico and Texas").

Vermivora brevipennis BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 328 (Texas).

Helminthos? SCLATER, Proc. Zool. Soc. Lond., 1856, 291 (Cordova, Vera Cruz).

Hylophilus cinereiceps SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1860, 299 (Choctum, Vera Paz, Guatemala; coll. Salvin and Godman).—SALVIN and SCLATER, Ibis, 1860, 397 (Vera Paz); Proc. Zool. Soc. Lond., 1864, 348 (Panama R. R.).—SCLATER, Cat. Am. Birds, 1862, 44 (Choctum; Cordova, Vera Cruz).

Hylophilus plumbiceps (error for *cinereiceps*) LAWRENCE, Ann. Lyc. N. Y., vii, 1862, 323 (Panama R. R.).

PACHYSYLVIA OCHRACEICEPS OCHRACEICEPS (Sclater).

TAWNY-CROWNED PACHYSYLVIA.

Adults (sexes alike).—Forehead and crown tawny-olive or olive-tawny, the former becoming lighter and more yellowish anteriorly, sometimes distinctly yellow, especially above upper margin of lores; occiput duller or more olive than crown, the hindneck decidedly olive; back, scapulars, and outer surface of wings olive-brown or russet-brown, paler on edges of primaries, the alula and primary coverts plain dusky, in strong contrast with general color of wings; rump and upper tail-coverts light olive or greenish olive; tail, russet; loreal,

auricular, and malar regions dull olive-grayish, the chin and throat similar, but paler; chest and anterior portion of sides light yellowish ochraceous-brown, becoming pale olive on flanks; median portion of breast, abdomen, and under tail-coverts pale olive-yellowish; under wing-coverts, axillars, and edges of inner webs of remiges sulphur or primrose yellow; maxilla brown, darker basally; mandible paler brown; legs and feet pale brownish (in dried skins).

Adult male.—Length (skins), 103–106 (104.7); wing, 55–61 (57.8); tail, 43–48 (44.7); exposed culmen, 12–13 (12.3); tarsus, 17.5–18 (17.8); middle toe, 10.^a

Adult female.—Length (skins), 110–117 (113.5); wing, 60; tail, 46; exposed culmen, 13; tarsus, 18; middle toe, 10.^b

Southern Mexico, in States of Mexico (Valley of Mexico)?, Oaxaca (Playa Vicente), Tabasco (Teapa), and Campeche (Apazote), and southward through Guatemala to northern Honduras (Rio de las Piedras).

Hylophilus ochraceiceps SCLATER, Proc. Zool. Soc. Lond., 1859, 375 (Playa Vicente, Oaxaca, s. w. Mexico; coll. P. L. Sclater); Cat. Am. Birds, 1862, 44, pl. 44, fig. 5 (Playa Vicente; Choctum, Guatemala); Ibis, 1881, 306, part (Oaxaca; Guatemala).—SALVIN and SCLATER, Ibis, 1860, 397 (Choctum).—BAIRD, Review Am. Birds, 1866, 376, part (Oaxaca?).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1881, 207, part.—GADOW, Cat. Birds Brit. Mus., viii, 1883, 310, part.—CHERRIE, Proc. U. S. Nat. Mus., xiv, 1891, 521, part (Mexico; crit.).

[*Hylophilus*] *ochraceiceps* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 12, part.

H[ylophilus] ochraceiceps RIDGWAY, Man. N. Am. Birds, 1887, 479, part.

PACHYSYLVA OCHRACEICEPS PALLIDIPECTUS Ridgway.^c

PALE-BREASTED PACHYSYLVA.

Similar to *P. o. ochraceiceps*, but upper parts slightly more olivaceous, chest and sides much paler—pale yellowish or buffy olive, instead of ochreous-brown, and under wing-coverts paler yellow (pale primrose).

Adult male.—Length (skins), 100–117 (107.2); wing, 57–59 (57.5); tail, 40–43 (41.6); exposed culmen, 12–13 (12.7); tarsus, 17.5–18 (17.9); middle toe, 10.^d

Adult female.—Length (skin), 104; wing, 54; tail, 48; exposed culmen, 13; tarsus, 16.5; middle toe, 10.^e

Southern Honduras (Segovia River) to Chiriqui.

Hylophilus ochraceiceps (not of Sclater, 1859) SCLATER, Ibis, 1881, 306, part (monogr.).—BAIRD, Review Am. Birds, 1866, 376, part (Angostura, Costa Rica).—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 97 (Angostura, Costa Rica;

^a Three specimens.

^b Two specimens.

^c Type, no. 47396, coll. U. S. Nat. Mus., adult male, Angostura, Costa Rica, July 8, 1867; J. Carmiol. "Iris yellow."

^d Five specimens.

^e One specimen.

Bugaba, Veragua).—SALVIN, Proc. Zool. Soc. Lond., 1870, 184.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1881, 207, part (Costa Rica; Veragua; Chiriqui).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 310, part (Mexico; Guatemala).—ZELEDON, Anal. Mus. Nac. Costa Rica, i, 1887, 108 (Rio Sucio, Costa Rica).—RIDGWAY, Proc. U. S. Nat. Mus., x, 1888, 585 (Segovia R., a Honduras).—CHERRIE, Proc. U. S. Nat. Mus., xiv, 1891, 529, part (Costa Rica; Veragua; Segovia R.; crit.); Anal. Inst. Fis.-Geog. Nac. Costa Rica, vi, 1893, 13 (Rio Naranjo, Costa Rica).—BANGS, Proc. New Engl. Zool. Club, iii, 1902, 59 (Volcan de Chiriqui, 4,000 ft.; crit.).

[*Hylophilus*] *ochraceiceps* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 12, part.

H[ylphilus] *ochraceiceps* RIDGWAY, Man. N. Am. Birds, 1887, 479, part.

PACHYSYLVA AURANTIIFRONS AURANTIIFRONS (Lawrence).

LAWRENCE'S PACHYSYLVA.

Adults (sexes alike).—Pileum and hindneck olivaceous wood brown or isabella color, becoming paler and more yellowish on forehead; rest of upper parts plain yellowish olive-green; lores and eyelids dull whitish; auricular region and sides of neck pale buffy wood brown (the latter more buffy); suborbital and malar regions dull buffy whitish or pale dull buffy; chin and throat dull buffy whitish; rest of under parts pale yellow (straw or dull sulphur), the chest faintly tinged with pale brownish buffy, the sides and flanks with pale olive-greenish; maxilla horn brownish, darker on culmen (sometimes at base also); mandible much paler brown or brownish white (said to be pinkish in life);^b iris chocolate;^b legs and feet pale horn color in dried skins (said to be lead-colored in life).^b

Adult male.—Length (skins), 103–107 (105.4); wing, 52.5–58 (55.9); tail, 40–46 (43.5); exposed culmen, 12–12.5 (12.1); tarsus, 15.5–16 (15.7); middle toe, 8.5–10 (9.1).^c

Adult female.—Length (skin), 105; wing, 52; tail, 42; exposed culmen, 11.5; tarsus, 16; middle toe, 9.^d

Coast district of Colombia, from Santa Marta to Panama.^e

Hylophilus aurantiifrons LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., vii, 1862, 324 (Panama R. R.; coll. G. N. Lawrence).—BAIRD, Review Am. Birds, 1866, 377 (Panama R. R.).—SCLATER, Ibis, 1881, 303, part (Isthmus of Panama).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1881, 207, part (Panama R. R.; excl. syn. *H. hypoxanthus* Pelzeln).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 310, part (excl. syns. *insularis* Sclater, *hypoxanthus* Pelzeln, and *acuticaudus* Lawrence).—BANGS, Proc. Biol. Soc. Wash., xii, 1898, 142 (Santa Marta.

^a "Orange-fronted" *Pachysylvia* would obviously be a good vernacular name for this species if the specific scientific name had been wisely chosen; but the color of the forehead does not even remotely approach an orange hue, and therefore the name mentioned would be exceedingly inappropriate.

^b Fred Hicks, on label.

^c Five specimens—two from Panama, three from Santa Marta.

^d One specimen, from Santa Marta.

^e The Venezuelan and Trinidad birds represent different and strongly marked subspecies. (See pages 215.)

Colombia).—ALLEN, Bull. Am. Mus. N. H., xiii, 1900, 172 (Bonda, etc., Santa Marta; crit.).

(?) *Hylophilus hypoxanthus* (not of Pelzel) SALVIN and GODMAN, Ibis, 1880, 118 (Valencia, Venezuela).^a

PACHYSYLVA VIRIDIFLAVA (Lawrence).

YELLOW-GREEN PACHYSYLVA.

Adults (sexes alike).—Above plain yellowish olive-green, slightly duller and grayer or browner on pileum; shafts of rectrices blackish; loreal, auricular and malar regions pale olive-grayish; chin dull whitish, deepening into a more grayish hue on upper throat, the lower throat, chest, and anterior portion of sides pale yellowish olive or buffy olive; rest of under parts Naples yellow; under wing-coverts lighter and clearer yellow (approaching canary yellow); bill usually pale brown, sometimes blackish;^b iris dark brown;^c legs and feet pale brownish (in dried skins).

Adult male.—Length (skins), 108–113 (111); wing, 56; tail, 49; exposed culmen, 11–11.5 (11.2); tarsus, 18–19 (18.7); middle toe, 10–11 (10.7).^d

Adult female.—Length 106–117 (111.5); wing, 53–55 (53.9); tail, 46–52 (48.7); exposed culmen, 11–12 (11.2); tarsus, 18–19 (18.6); middle toe, 10–11 (10.5).^e

Isthmus of Panama, north to Veragua.

Hylophilus viridiflavus LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., vii, 1861, 324 (Panama R. R.; coll. G. N. Lawrence).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 348 (Panama R. R.).—BAIRD, Review Am. Birds, 1866, 380 (Panama).—SALVIN, Proc. Zool. Soc. Lond., 1867, 137 (Santa Fé, Veragua); 1870, 184 (Bugaba, Veragua).—SCLATER, Ibis, 1881, 309 (monogr.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1881, 208, pl. 13, fig. 1.

[*Hylophilus*] *viridiflavus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 12.

Hylophilus flavipes viridiflavus BANGS, Auk, xviii, Oct., 1901, 368 (Divala and David, Chiriqui).

[*Hylophilus flavipes*] β . Northern Race (*H. viridiflavus*) GADOW, Cat. Birds Brit. Mus., viii, 1883, 312.

Hylophilus flavipes (not of Lafresnaye) GADOW, Cat. Birds Brit. Mus., viii, 1883, 312, part.

Genus VIREOLANIUS Du Bus.

Vireolanius DuBus, Esquisses Ornith., 1850, pl. 26. (Type *V. melitophrys* Du Bus.)

^a According to Allen, Bull. Am. Mus. N. H., xiii, 172. I have not seen a specimen from the locality mentioned.

^b In five adults from Panama the bill is pale brown (the mandible still paler); in one specimen from Panama the maxilla is blackish on culmen and below nostrils, the rest pale horn color, the mandible blackish laterally, pale horn color on under side; in two specimens from Chiriqui (Divala and David) the bill is black.

^c Heyde, manuscript.

^d Three specimens.

^e Four specimens.

Rather large Vireonidae (wing more than 70 mm.), with rather large and elongated, strongly uncinatè bill, its depth at frontal antiæ nearly equal to its width at same point; inner toe (without claw) as long as or longer than hallux (without claw), its claw reaching to decidedly beyond base of middle claw; color bright parrot green above with blue on crown, or else a bright yellow superciliary stripe.

Bill large, elongated (exposed culmen nearly to more than one-fourth as long as wing, commissure decidedly longer than middle toe with claw), nearly as broad as deep at base; culmen nearly straight basally (sometimes for most of its length), strongly decurved terminally, the tip of maxilla conspicuously uncinatè; maxillary tomium nearly straight, distinctly notched subterminally; mandibular tomium more faintly notched, the tip of the mandible produced into an ascending point. Nostril exposed, obliquely or horizontally oval, in lower anterior portion of nasal fossæ, the membrane broadest behind it. Rictal bristles inconspicuous, the largest not better developed than bristly points of frontal feathers. Wing rather short and rounded; tenth (outermost) primary nearly half to more than half as long as ninth, the latter not shorter than first, sometimes longer than second; eighth to fifth longest. Tail much shorter than wing (the difference usually nearly equal to length of tarsus, sometimes much less), even or very slightly rounded or double-rounded. Tarsus much longer than middle toe with claw (much more than one-fourth but less than one-third as long as wing), distinctly scutellate anteriorly; outer toe longer than inner, the latter (without claw) as long as or slightly longer than hallux (with claw); both lateral claws reaching decidedly beyond base of middle claw.

Coloration.—Above bright parrot green with or without blue on pileum, or olive-green with pileum gray bordered laterally by a superciliary stripe of yellow; beneath green or greenish yellow with yellow throat, entirely yellow, or white with a chestnut-rufous band across chest.

Range.—Continental tropical America.

KEY TO THE SPECIES AND SUBSPECIES OF VIREOLANIUS.

- a. Above bright parrot green, with or without blue on pileum; beneath light yellowish green, the throat yellow.
- b. No yellow on sides of head (except, sometimes, an indistinct rictal streak).
(*Vireolanus pulchellus*.)
- c. Forehead blue.
- d. Whole pileum and hindneck blue, the center of crown sometimes green.
(Southern Mexico to Guatemala.)

Vireolanus pulchellus pulchellus (p. 223)

- dd. Only the forehead and part of hindneck blue, the entire crown green.
(Nicaragua and Costa Rica.) ... *Vireolanus pulchellus verticalis* (p. 224)

- cc. Forehead green (together with entire crown and occiput and greater part of hindneck). (Veragua to Panama.) *Vireolanus pulchellus viridiceps* (p. 224)

bb. A superciliary stripe of yellow. (Central Colombia.)

Vireolanus eximius (extralimital)^a

aa. Pileum and hindneck gray; rest of upper parts olive-green; under parts white, with chestnut across chest and along sides. (Southern Mexico to Guatemala.)

Vireolanus mellitophrys (p. 225)

VIREOLANIUS PULCHELLUS PULCHELLUS Sclater and Salvin.

GREEN SHRIKE-VIREO.

Adults (sexes alike).^b—Pileum and hindneck cerulean blue (more verditer blue in worn plumage), the center of crown usually somewhat intermixed with green, occasionally with a well-defined patch of that color; rest of upper parts, together with sides of head (including superciliary region) and neck, bright parrot green; chin and throat yellow (sulphur to lemon);^c rest of under parts light yellowish green (apple green), deeper green on sides and flanks; under wing-coverts, axillars, and inner edge of remiges light yellow (sulphur to canary); under tail-coverts greenish yellow; maxilla dusky (bluish gray in life?); becoming black terminally; mandible pale grayish (grayish blue or bluish gray in life?); legs and feet horn color (bluish gray or grayish blue in life?); length (skins), 125–149 (132.6); wing, 70–77 (72.9); tail, 48–59 (51.1); exposed culmen, 15.5–19 (17.8); tarsus, 21–23 (21.9); middle toe, 10–12 (11.6).^d

Southern Mexico, in State of Vera Cruz (Mirador; Buena Vista), and highlands of Guatemala (Choctum; mountains of Rasché; Savana Grande; Volcan de Agua, above San Diego).

Vireolanus pulchellus SCLATER and SALVIN, Ibis, ser. i, i, Jan., 1859, 12 (Guatemala; coll. Brit. Mus.); Exotic Orn., pt. 1, 15, pl. 8.—SALVIN, Ibis, 1861, 147 (mts. near Lanquin, Guatemala); 1878, 443, in text.—SCLATER, Cat. Am. Birds, 1862, 45 (Choctum, Vera Paz, Guatemala).—BAIRD, Review Am. Birds, 1866, 397, part (Mirador, Vera Cruz; Choctum, Guatemala).—BOU-

^a *Vireolanus eximius* Baird, Review Am. Birds, May, 1866, 398 (Bogota, Colombia; coll. Acad. Nat. Sci. Phila.); Sclater and Salvin, Exotic Orn., 1869, note to pl. 8; Gadow, Cat. Birds Brit. Mus., viii, 1883, 316.—*Vireolanus icterophrys* (not of Bonaparte) Sclater, Proc. Zool. Soc. Lond., 1855, 151, pl. 103.

^b Among a series of fourteen specimens *only one* has the sex determined by the collector, consequently I am unable to give separate measurements for the sexes, or to state whether there is an average difference in brightness of coloration according to sex.

^c Sometimes there is a more or less distinct indication of a yellow rectal streak. One specimen, labeled "Central America," but without definite locality (no. 42597, coll. U. S. Nat. Mus., received from J. G. Bell), is remarkable for having the green entirely replaced by verditer blue and the yellow of throat and under wing-coverts by white. Possibly it was preserved in alcohol before skinning.

^d Nine specimens, those from Mexico and Guatemala, respectively, comparing in average measurements as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
Three adults from Mexico (Vera Cruz)	73.7	54.7	17.5	22.3	12
Six adults from Guatemala.....	72.5	49.3	18	21.7	11.8

CARD, Liste Ois. Guat., 1878, 31.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 210, part (Mirador, Vera Cruz; Choctum, mountains of Rasché, Savana Grande, and Volcan de Agua, above San Diego, Guatemala).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 315, part (Guatemala).

[*Vireolanius pulchellus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 13, part.

VIREOLANIUS PULCHELLUS VERTICALIS Ridgway.

CARMOL'S SHRIKE-VIREO.

Similar to *V. p. pulchellus*, but entire crown and part of occiput green, the blue being restricted to forehead and hindneck.

Adult male.—Length (skin), 141; wing, 75; tail, 49; exposed culmen, 18; tarsus, 21; middle toe, 12.^a

Adult female.—Length (skins), 124–125 (124.5); wing, 65–67 (66); tail, 42–45 (43.5); exposed culmen, 17–18 (17.5); tarsus, 21–22 (21.5); middle toe, 12.^b

Nicaragua (Chontales; Rio Escondido; Bluefields) and Costa Rica (Angostura; Orosi).

Vireolanius pulchellus (not of Sclater and Salvin) LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 97 (Angostura, Costa Rica).—BAIRD, Review Am. Birds, 1866, 397, part (Angostura).—SALVIN, Ibis, 1872, 314 (Chontales, Nicaragua).—ZELEDON, Catal. Aves de Costa Rica, 1882, no. 99.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 210, part (Chontales, Nicaragua; Angostura and Orosi, Costa Rica).

[*Vireolanius pulchellus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 13, part.

Vireolanius pulchellus verticalis RIDGWAY, Proc. U. S. Nat. Mus., viii, Apr. 20, 1885, 24 (Angostura, Costa Rica; coll. U. S. Nat. Mus.).—ZELEDON, Anal. Mus. Nac. Costa Rica, i, 1887, 108 (Costa Rica).—CHERRIE, Proc. U. S. Nat. Mus. xiv, 1891, 529 (Costa Rica).—RICHMOND, Proc. U. S. Nat. Mus., xv, 1893, 487 (Rio Escondido, Nicaragua; crit.).

VIREOLANIUS PULCHELLUS VIRIDICEPS, new subspecies.^c

PANAMA SHRIKE-VIREO.

Similar to *V. p. verticalis*, but forehead, whole crown, and occiput green, and blue band across hindneck narrower.

Adult male (?).—Length (skin), 130; wing, 74; tail, 47; exposed culmen, 17.5; tarsus, 21; middle toe, 13.^d

Adult female.—Length (skin), 128; wing, 65; tail, 42; exposed culmen, 16.5; tarsus, 22; middle toe, 12.^e

Veragua (Calobre, Calovevora) to Panama.

Vireolanius pulchellus (not of Sclater and Salvin) LAWRENCE, Ann. Lyc. N. Y., vii, 1862, 468 (Panama R. R.).—SALVIN, Proc. Zool. Soc. Lond., 1870, 184 (Calovevora, Veragua).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 210, part (Calovevora and Calobre, Veragua; Panama R. R.).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 315, part.

[*Vireolanius pulchellus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 13, part.

^aOne specimen, from Costa Rica (the type).

^bTwo specimens, from Bluefields, Nicaragua.

^cType, no. 40148, coll. Am. Mus. Nat. Hist., adult female, Panama; J. McLeannan.

^dOne specimen, from Calobre, Veragua.

^eOne specimen, the type.

VIREOLANIUS MELITOPHRYS Bonaparte.

DU BUS' SHRIKE-VIREO.

Adult male.—Pileum and hindneck plain slate-gray, the former bordered along each side by a broad superciliary stripe of saffron yellow, this paler anteriorly and posteriorly, terminating in a white spot on side of nape; lores dull white, except posterior portion; a broad black postocular stripe, occupying more than upper half of auricular region, anteriorly extending narrowly beneath eye to posterior portion of lores; lower portion of auricular region, suborbital region (except a narrow line on lower eyelid), malar region and under parts, white; a black submalar streak, or series of streaks, along each side of throat; band across chest chestnut, this continued along sides and flanks, becoming broken and less distinct on the latter, which are strongly tinged with olive-gray; back, scapulars, rump, upper tail-coverts, tail, and wings, plain olive-green, the longer primaries edged for terminal half with white; bill black; iris greenish white;^a legs and feet light cinnamon-brownish, in dried skins, flesh color in life;^a length (skin), 165; wing, 85; tail, 67; exposed culmen, 17; tarsus, 24.5; middle toe, 14.^b

Adult female (?)^c.—Similar to the adult male, as described above, but decidedly paler and duller in color; gray of pileum and hindneck light mouse gray or deep smoke gray, instead of slate-gray, changing gradually into the dull grayish olive-green of back; superciliary stripe canary yellow, instead of saffron or cadmium yellow; stripe on side of head mouse gray, with whitish shaft-streaks, instead of black; black submalar streak broader, longer, and more "solid" or continuous; chestnut band across chest paler (cinnamon-rufous), and not continued laterally along sides, the sides of breast being ochraceous-buff, fading gradually to very pale olive-gray on flanks; breast and abdomen dull

^a According to Salvin and Godman.

^b Description and measurements from no. 143387, coll. U. S. National Museum (Biological Survey collection), adult male, Jico, Vera Cruz, July 14, 1893; E. W. Nelson. An adult male from Calderas, Volcan de Fuego (7,300 ft. alt.), Guatemala (no. 40144, coll. Am. Mus. Nat. Hist.), differs in having the yellow superciliary stripe uniform yellow from end to end, the color being lemon instead of saffron; the black submalar streak narrower and shorter, and the chestnut band across chest apparently narrower and darker chestnut; wing 78, tail 70, exposed culmen 17, tarsus 25, middle toe 15.

^c Described from no. 52358, coll. U. S. Nat. Mus.; collected "near the City of Mexico;" received from Osbert Salvin. This specimen is so conspicuously different in coloration from the male from Jico, Vera Cruz, described above, that were it not for Salvin and Godman's description of a female from Guatemala (Volcan de Fuego) in the *Biologia Centrali-Americana*, I would be inclined to consider it as representing a paler arid region (table-land) form. According to Salvin and Godman's description the female from Guatemala differs from the male in having the pileum tinged with ochraceous, stripe on sides of head fuscous-black, chestnut of chest paler, and the abdomen washed with ochraceous.

buffy white, instead of pure white; length (skin), 172; wing, 83; tail, 71; exposed culmen, 16.5; tarsus, 24; middle toe, 14.

Southern Mexico, in States of Vera Cruz (Orizaba; Jalapa; Jico; Capulalpam) and Mexico (Valley of Mexico?) to highlands of Guatemala (Volcan de Fuego, Coban, etc.).

Vireolanius melitophrys BONAPARTE, Consp. Av., i, 1850, 330 (Mexico; ex Du Bus, Esquisses Orn. pl. 26).—SCLATER, Proc. Zool. Soc. Lond., 1857, 213 (Orizaba, Vera Cruz); 1859, 363 (Jalapa, Vera Cruz); 1862, 19 (Capulalpam, Vera Cruz); Cat. Am. Birds, 1862, 45 (Jalapa).—SALVIN and SCLATER, Ibis, 1860, 31 (Coban, Guatemala).—BAIRD, Review Am. Birds, 1866, 396 (Volcan de Fuego, Guatemala).—SUMICHRIST, Mem. Bost. Soc. N. H., i, 1869, 548 (temp. region Vera Cruz).—SCLATER and SALVIN, Exotic Orn. pt. i, 1866, 16, pl. 7.—SALVIN, Ibis, 1878, 443, in text.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 209 (Valley of Mexico, etc.).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 314.

[*Vireolanius*] *melitophrys* GRAY, Hand-list, i, 1869, 382, no. 5780.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 13.

Genus CYCLARHIS Swainson.

Cyclarhis SWAINSON, Zool. Journ., i, Oct., 1824, 294, in text. (Type, *Tanagra guianensis* Gmelin.)

Cyclaris (emendation) SWAINSON, Classif. Birds, ii, 1837, 13, 14, 375, 382, in text.

Cychlaris (emendation) BLASIUS, 1849.

Cyclorhis (emendation) REICHENBACH, Av. Syst. Nat., 1850, pl. 70

Cycloris (emendation) BONAPARTE, Consp. Av., i, 1850, 330.

Cyclorhis (emendation) CABANIS, Mus. Hein., i, 1850, 64.

Laniagra LAFRESNAYE and D'ORBIGNY, Mag. de Zool., 1837 (Synopsis Avium, p. 9). (Type, *Tanagra guianensis* Gmelin.)

Large and stoutly built Vireonidæ (wing more than 70 mm.), with relatively high and compressed bill (its depth at frontal antiæ nearly twice its width at same point), lateral toe (without claw) as long as or longer than hallux (without claw), its claw reaching to decidedly beyond base of middle claw; upper parts olive-greenish, varied by a rufescent superciliary stripe, the under parts with more or less of yellow or olive-yellowish.

Bill large but relatively short, deep and compressed, the exposed culmen much shorter than tarsus but nearly equal to middle toe with claw, the depth of bill at frontal antiæ very much greater than its width at same point but decidedly less than length of gonys; culmen gradually curved for most of its length (sometimes nearly straight basally), the curve gradually more decided terminally, the tip of maxilla usually not strongly uncinate; gonys shorter than distance from nostril to tip of maxilla, strongly convex; maxillary tomium straight, or nearly so, distinctly notched subterminally, that of the mandibular tomium faintly notched. Nostril exposed, broadly oval or roundish, in lower anterior portion of nasal fossæ. Rictal bristles weak, less strongly developed than those of latero-frontal and chin feathers. Wing rather short and rounded; tenth primary half as long as ninth,

or more, the latter shorter than first, sometimes shorter than secondaries; seventh, sixth, and fifth longest. Tail shorter than wing but difference less than length of tarsus (sometimes less than exposed culmen), even or slightly rounded. Tarsus less than one-third as long as wing but equal to or longer than commissure, stout, the acrotarsium distinctly scutellate; outer toe longer than inner, the latter (without claw) as long as hallux (without claw); claws of both lateral toes reaching decidedly beyond base of middle claw.

Coloration.—Above plain olive or olive-green, the pileum brownish or grayish, bordered on each side with a superciliary stripe of rufous, chestnut, or cinnamon; under parts with more or less of yellow or yellowish olive.

Range.—Continental tropical America.

KEY TO THE SPECIES AND SUBSPECIES OF *CYCLARHIS*.

- a. Under parts entirely yellow (except chin). (*Cyclarhis flaviventris*.)
 - b. Brighter colored, with yellow of under parts deeper. (Southern Mexico and Guatemala; Honduras?).....*Cyclarhis flaviventris flaviventris* (p. 228)
 - bb. Duller colored, with yellow of under parts paler. (Yucatan.)
Cyclarhis flaviventris yucatanensis (p. 229)
- aa. Under parts with abdominal region white.
 - b. Throat, chest, and sides yellowish olive; under wing-coverts pale straw or sulphur yellow; back, etc., grayish olive-green. (Cozumel Island, Yucatan.)
Cyclarhis insularis (p. 230)
 - bb. Throat, chest, and sides lemon yellow (usually more or less tinged with olive); under wing-coverts lemon yellow; back, etc., bright olive green. (*Cyclarhis flavipectus*.)
 - c. Above brighter olive-green; averaging larger, especially the bill (exposed culmen averaging 18). (Island of Trinidad; Venezuela?)
Cyclarhis flavipectus flavipectus (extralimital)^a
 - cc. Above duller olive-green; averaging smaller, especially the bill (exposed culmen averaging less than 17).
 - d. Yellow of under parts brighter. (Colombia.)
Cyclarhis flavipectus canticus (extralimital)^b
 - dd. Yellow of under parts paler or duller. (Costa Rica and Chiriqui.)
Cyclarhis flavipectus subflavescens (p. 230)

^a *Cyclarhis flavipectus* Sclater, Proc. Zool. Soc. Lond., 1858, 448 (Trinidad; coll. P. L. Sclater); Cat. Am. Birds, 1862, 45, part (Trinidad); Baird, Review Am. Birds, 1866, 389, part (Trinidad); Gadow, Cat. Birds Brit. Mus., viii, 1883, 320, part (Trinidad); Berlepsch, Ibis, 1888, 85, 91, part (Trinidad); Chapman, Bull. Am. Mus. N. H., vi, 1894, 26 (Trinidad; habits; song; crit.).—*Cyclorhis flavipectus trinitatis* Allen, Bull. Am. Mus. N. H., ii, no. 3, June 17, 1889, 131, in text (Trinidad).

^b *Cyclarhis flavipectus canticus* Bangs, Proc. Biol. Soc. Wash., xii, June 3, 1898, 142 (Santa Marta, Colombia; coll. E. A. and O. Bangs); Allen, Bull. Am. Mus. N. H., xiii, 1900, 171 (Bonda, Santa Marta; crit.).—*Cyclorhis flavipectus* (not of Sclater) Authors, part (specimens from Colombia).

CYCLARHIS FLAVIVENTRIS FLAVIVENTRIS Lafresnaye.

MEXICAN PEPPER-SHRIKE.

Adult male.—Forehead (at least laterally) and very broad superciliary stripe, cinnamon-rufous; crown and occiput mouse gray or dull slate-gray, sometimes (in younger birds?) tinged with cinnamon-rufous; hindneck and sides of head, including auricular, suborbital, and malar regions, lighter and clearer gray (cinereous or no. 6 gray);^a lores cinnamon-gray; rest of upper parts plain olive-green; chin whitish; rest of under parts yellow (canary, sometimes approaching lemon or gamboge), more or less tinged with olive on throat and chest; maxilla cinnamon-brownish, whitish terminally and on tomia; mandible dusky (bluish gray or grayish blue in life), the terminal portion whitish; iris reddish brown or brownish red; legs and feet pale brown in dried skins, flesh-colored in life; length (skins), 147–160 (152.4); wing, 75–81 (77.1); tail, 56–64 (60.6); exposed culmen, 16–18.5 (17.5); depth of bill at nostrils, 8.5–10 (9.4); tarsus, 23–25 (23.9); middle toe, 11–13 (12.1).^b

Adult female.—Similar to the adult male and probably not always distinguishable, but usually slightly duller in color, especially the gray of the crown and occiput, which is more or less strongly tinged with brown; length (skins), 152–162 (155.7); wing, 72–79 (76.5); tail, 60–63 (61.7); exposed culmen, 16.5–18 (17.6); depth of bill at nostril, 9.5–10 (9.8); tarsus, 22–25 (23.5); middle toe, 12–14 (13.5).^c

Young.—Similar to adults, but pileum more brownish gray (sometimes decidedly brown), superciliary stripe paler (ochraceous-buff or cinnamon-buff), yellow of throat, chest, and breast more strongly tinged with olive-green, and mandible entirely light brownish.

Southern Mexico, in States of Vera Cruz (Mirador; Orizaba; Jalapa;

^aOf Ridgway's Nomenclature of Colors.

^bFourteen specimens.

^cFour specimens.

Specimens from different localities average in measurements as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at nos- trils.	Tarsus.	Middle toe.
MALES.						
Six adult males from Vera Cruz.....	77.5	61.3	17.7	9.4	24.5	11.8
Five adult males from Oaxaca.....	77.2	61	17.6	9.7	23.2	12
One adult male from Chiapas.....	77	58	17	8.5	23	13
Two adult males from Guatemala.....	76	58.5	17	9	24	12.5
FEMALES.						
Two adult females from Vera Cruz.....	77.5	62.5	17.2	10	24.5	14
One adult female from Oaxaca.....	79	62	18	9.5	22	14
One adult female from Guatemala.....	72	60	18	.....	23	12

Plan del Rio; Jico; Papantla; Motzorongo; Paso Nuevo), Puebla (Metaltoyuca), Mexico (Valley of Mexico), Oaxaca (Tuxtepec; Petapa), and Chiapas (Guichicovi; mountains near Tonalá), and Guatemala. Honduras?

Cycl[aris] flaviventris LAFRESNAYE, Rev. Zool., 1842, 133 ("Santa Cruz," i. e., Vera Cruz ?, Mexico; type in coll. Bost. Soc. Nat. Hist.).

Cycl[arhis] flaviventris LAFRESNAYE, Mag. de Zool., 1843, text to pl. 33.

Cyclorhis flaviventris BONAPARTE, Consp. Av., i, 1850, 330 (Jalapa).

Cyclorhis flaviventris TSCHUDI, Wiegmann's Archiv. für Naturg., 1845, 363 (Mexico).—SCLATER, Proc. Zool. Soc. Lond., 1856, 99 (Mexico); 1859, 363 (Jalapa, Vera Cruz); 1864, 173 (Valley of Mexico); Cat. Am. Birds, 1862, 45 (Guatemala, Mexico); Ibis, 1887, 322 (crit.).—SCLATER and SALVIN, Ibis, 1859, 13 (Guatemala).—BAIRD, Review Am. Birds, 1866, 386, part (Orizaba and Mirador, Vera Cruz; Coban, Guatemala).—SUMICHRIST, Mem. Bost. Soc. N. H., i, 1869, 548 (temp. region Orizaba).—LAWRENCE, Bull. U. S. Nat. Mus., no. 4, 1876, 18 (Guichicovi Chiapas; Petapa, Oaxaca).—SALVIN, Cat. Strickland Coll., 1882, 114 (Guatemala).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 321.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 211, part (excl. Yucatan references and localities).—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 138 (Jalapa and Plan del Rio, Vera Cruz).—BERLEPSCH, Ibis, 1888, 85, 91 (crit.).—ALLEN, Bull. Am. Mus. N. H., ii, 1889, 131, 134, part (crit.; diagnosis; s. Mexico; Guatemala).—CHAPMAN, Bull. Am. Mus. N. H., x, 1898, 26 (Jalapa).

Cyclorhis flaviventris CABANIS, Mus. Hein., i, 1850, 64 (Jalapa).

[*Cyclorhis*] *flaviventris* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 13.

Cyclorhis amaurophrys LICHTENSTEIN, Nomencl. Av. Mus. Berol., 1854, 11 (nomen nudum).

CYCLARHIS FLAVIVENTRIS YUCATANENSIS Ridgway.

YUCATAN PEPPER-SHRIKE.

Similar to *C. f. flaviventris*, but gray of crown and occiput clearer and slightly paler; superciliary stripe usually paler (ochraceous or vinaceous-cinnamon), olive-green of back, etc., slightly duller or grayer, and yellow of under parts paler.

Adult male.—Length (skins), 147–162 (153.9); wing, 74–80 (78); tail, 58–63 (60.6); exposed culmen, 15–17 (16.7); depth of bill at nostrils, 9–9.5 (9.2); tarsus, 21–24 (23.9); middle toe, 12–13.5 (12.9).^a

Adult female.—Length (skins), 143–155 (149); wing, 73–79 (76); tail, 61–63 (61.5); exposed culmen, 16–18 (17.2); tarsus, 23–24 (23.5); middle toe, 13–14 (13.2).^b

Yucatan (Merida; La Vega; Chichen Itza; Temax; Kangul) and Campeche (Campeche).

Cyclorhis flaviventris (not of Lafresnaye) BAIRD, Review Am. Birds, 1866, 386, part (Merida, Yucatan).—LAWRENCE, Ann. Lyc. N. Y., ix, 1869, 200 (Merida, Yucatan).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 211, part (Merida, etc., Yucatan).—SALVIN, Ibis, 1888, 255 (Meco I., Yucatan).—ALLEN, Bull. Am. Mus. N. H., ii, 1889, 131, 134, part (Yucatan).

^aSeven specimens.

^bFour specimens.

Cyclorhis flaviventris yucatanensis RIDGWAY, Proc. U. S. Nat. Mus., ix, Nov. 28, 1886, 519 (Merida, n. Yucatan; coll. U. S. Nat. Mus.).—BERLEPSCH, Ibis, 1888, 91 (crit.).—ALLEN, Bull. Am. Mus. N. H., ii, 1889, 132, 134 (crit.).—CHAPMAN, Bull. Am. Mus. N. H., viii, 1896, 278 (Chichen Itza, Yucatan).

CYCLARHIS INSULARIS Ridgway.

COZUMEL PEPPER-SHRIKE.

Adults (sexes alike).—Pileum and hindneck deep brownish gray or grayish brown (hair brown); rest of upper parts grayish olive-green (very much duller than in *C. flaviventris* and its subspecies); a broad superciliary stripe of cinnamon-rufous or russet; sides of head, including auricular, suborbital, and malar regions, plain gray (no. 6); chin paler gray; lores pale brownish gray or light brownish; throat, chest, upper breast, sides and flanks light yellowish olive; lower breast, abdomen, and under tail-coverts white, sometimes tinged with dull yellow; under wing-coverts and edges of inner webs of remiges pale sulphur yellow; maxilla light brown; mandible grayish black (bluish gray or grayish blue in dried skins), the terminal half (more or less) pale brownish; legs and feet pale brownish (flesh colored in life?).

Adult male.—Length (skin), 161; wing, 82; tail, 61; exposed culmen, 18; depth of bill at nostrils, 10; tarsus, 24; middle toe, 14.^a

Adult female.—Length (skins), 138–151 (144.5); wing, 75–82 (79); tail, 54–62 (59.3); exposed culmen, 18–18.5 (18.3); depth of bill at nostrils, 9.5–10 (9.8); tarsus, 23.5–25 (24.1); middle toe, 13–14.^b

Island of Cozumel, Yucatan.

Cyclorhis insularis RIDGWAY, Descr. New Species Birds from Cozumel, Feb. 28, 1885, 2; Proc. Biol. Soc. Washington, iii, 1885, 22 (Cozumel I., Yucatan; coll. U. S. Nat. Mus.); Proc. U. S. Nat. Mus., viii, 1885, 565 (detailed descr.).—BERLEPSCH, Ibis, 1888, 85, 91 (crit.).—SALVIN, Ibis, 1888, 255 (crit.).—ALLEN, Bull. Am. Mus. N. H., ii, 1889, 132, 134 (crit.).

CYCLARHIS FLAVIPECTUS SUBFLAVESCENS (Cabanis).

COSTA RICAN PEPPER-SHRIKE.

Adult male.—Pileum dull brownish mouse gray, usually more or less tinged with rusty brown; a broad superciliary stripe of cinnamon-rufous or rufous-chestnut, broadest anteriorly, where sometimes extending narrowly across anterior portion of forehead; lower hindneck, sides of head, including auricular, suborbital, and malar regions, clear gray (no. 6) or slate-gray; chin paler gray or grayish white; lores more brownish gray; rest of upper parts plain olive-green; throat, chest, breast, sides, and flanks lemon yellow, usually more or less tinged with olive, especially on throat and chest; abdomen (sometimes lower breast also), anal region, and under tail-coverts white:

^a One specimen.

^b Three specimens.

under wing-coverts and edges of inner webs of remiges pure lemon yellow; maxilla brown (pale brown or flesh colored in life); mandible dusky (grayish blue in life), the terminal portion pale colored; iris yellow; legs and feet pale brownish (pale purplish or flesh color in life); length (skins), 130-145 (138.7); wing, 71-78 (75.6); tail, 52.5-58 (55.2); exposed culmen, 15-17 (16.1); depth of bill at nostrils, 8-8.5 (8.3); tarsus, 21-23 (21.2); middle toe, 12-13 (12.7).^a

Adult female.—Similar to the adult male and often not distinguishable, but usually (?) yellow of under parts either slightly paler and more restricted or else more tinged with olivaceous, pileum rather more decidedly brown, and olive-green of back, etc., slightly duller; length (skins), 135-148 (143.1); wing, 71-78 (75); tail, 56-60.5 (57.5); exposed culmen, 16-17 (16.3); depth of bill at nostrils, 8-9 (8.2); tarsus, 22-23.5 (22.6); middle toe, 13-14.5 (13.6).^b

Young.—Similar to adults but superciliary stripe paler (cinnamon or ochraceous-cinnamon, instead of cinnamon-rufous or rufous-chestnut), yellow of under parts purer (without olive tinge) and mandible wholly brown, like maxilla.

Costa Rica (Dota; Barranca; San José; Tucurriqui; Bebedero; Nicoya; Volcan de Irazú) and Chiriqui (Volcan de Chiriqui; Boquete).

^a Six specimens.

^b Seven specimens.

Examples of this species from various localities compare in average measurements as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at noe- trils.	Tarsus.	Middle toe.
MALES.						
Three adult males of <i>C. f. subflavescens</i> from Costa Rica	76.2	54.7	15.8	8	22	12.5
Three adult males of <i>C. f. subflavescens</i> from Chiriqui	75	55.7	16.3	8.5	21.8	12.8
Five adult males of <i>C. f. canticus</i> from Santa Marta	74.2	58.4	16.9	8.8	23	12.9
One adult male of <i>C. f. flavipectus</i> (?) from Venezuela	69.5	53	17.5	9	23	14
Two adult males of <i>C. f. flavipectus</i> from Trinidad	74	58.5	17	8	21.5	13.2
FEMALES.						
Three adult females of <i>C. f. subflavescens</i> from Costa Rica	74.7	56.3	16.2	8	22.7	13
Four adult females of <i>C. f. subflavescens</i> from Chiriqui	75.2	58.4	16.4	8.4	22.5	14
Two adults females of <i>C. f. canticus</i> from Santa Marta	74.2	60.5	17	8.7	22.7	13.5
Five adult females of <i>C. f. flavipectus</i> from Trinidad	74.4	56	18.4	8.4	23.4	13.4

The differences between the so-called subspecies are not very strongly marked, and I am not entirely satisfied as to their validity.

Cyclorhis subflavescens CABANIS, Journ. für Orn., viii, Nov, 1860 (pub. May, 1861), 405 (Costa Rica; coll. Berlin Mus.); 1861, 93 (do.).—SCLATER, Cat. Am. Birds, 1862, 359 (Costa Rica).—BAIRD, Review Am. Birds, 1866, 388 (Dota, Barranca, and San José, Costa Rica).—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 97 (Dota Mts.; San José).—SALVIN, Proc. Zool. Soc. Lond., 1870, 184 (Volcan de Chiriqui, Veragua).—FRANTZIUS, Journ. für Orn., 1869, 295 (Dota, Costa Rica).

[*Cyclorhis*] *subflavescens* SALVIN, Ibis, 1869, 313 (Costa Rica).

[*Cyclorhis*] *flavipectus subflavescens* SCLATER, Ibis, 1887, 322, in text (Costa Rica; Veragua).—BERLEPSCH, Ibis, 1888, 85, in text (crit.).

Cyclorhis flavipectus subflavescens ALLEN, Bull. Am. Mus. N. H., ii, no. 3, June, 1889, 131, 134 (Costa Rica; diagnosis).—BERLEPSCH, Ibis, 1888, 91.—CHERRIE, Proc. U. S. Nat. Mus., xiv, 1891, 529 (Costa Rica; crit.); Auk, ix, 1892, 23 (San José, Costa Rica; song).—BANGS, Proc. New Engl. Zool. Club, iii, 1902, 59 (Boquete, Chiriqui, 4,000 to 4,800 ft.).

Cyclorhis flaviventris (not of Lafresnaye) LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 97 (Gulf of Nicoya, Costa Rica).

[*Cyclorhis*] *flavipectus* (not of Sclater, 1858) SCLATER and SALVIN, Nom. Av. Neotr., 1873, 13, part (Costa Rica).

Cyclorhis flavipectus BOUCARD, Proc. Zool. Soc. Lond., 1878, 53 (San José, Costa Rica).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 320, part (Costa Rica).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 212, part (Barranca, Dota Mts., San José, Tucurriqui, Bebedero, Nicoya, and Irazú, Costa Rica; Volcan de Chiriqui, Veragua).—ZELEDON, Anal. Mus. Nac. Costa Rica, i, 1887, 108 (Dota, Costa Rica).—SCLATER, Ibis, 1887, 322, part (Costa Rica; Veragua; crit.).—BERLEPSCH, Ibis, 1888, 85, part (Costa Rica, Veragua).

Family LANIIDÆ.

THE SHRIKES.

Medium-sized to rather small denti-rostral "ten-primaried" acutiplantar Oscines with strongly hooked and toothed compressed bill, rather short and distinctly scutellate tarsi, rather short, rounded wing, the nostrils non-operculate, pierced into the almost or quite completely ossified nasal capsule, and more or less concealed by bristle-pointed antrorse feathers of the frontal antiæ.

Bill shorter than head, strong, compressed, almost abruptly hooked at tip, the maxillary unguis preceded by a distinct tomial notch and tooth; mandible with the tip acute and bent upward, the tomium more or less incised, but not notched nor toothed, subterminally; tarsus equal to or longer than commissure, with the acrotarsium distinctly scutellate, the outer plate of the planta tarsi sometimes also distinctly subdivided; middle toe, with claw, decidedly shorter than tarsus; lateral toes of equal length, their claws reaching about to base of middle claw; hallux (without claw) shorter than lateral toes (without claws) but much stouter; basal phalanx of middle toe adherent for nearly its entire length to outer toe, but united to inner toe at base only; claws moderately developed, strongly curved, rather sharp. Wing rather short, rounded; outermost (tenth) primary sometimes more than half as long as ninth, usually less, sometimes rudimentary;

eighth to sixth primaries longest. Tail nearly as long as wing, often longer, sometimes much longer, rounded, graduated, or nearly even, never emarginate nor forked; rectrices twelve. Plumage soft, blended, the head never crested, though feathers of the pileum are sometimes rather longer than usual.

Coloration.—Plumage never with brilliant colors,^a but with plain gray, brown or rufous predominating, varied with black and white or pale vinaceous; sexes usually alike in color; young with the plumage always more or less distinctly barred or transversely vermiculated or undulated.

Range.—Northern hemisphere in general, but in the western not south of Mexico; rather numerous represented in the Old World, only one genus and two species occurring in America.

The above diagnosis covers the group of true Shrikes, consisting of the genus *Lanius* and two or three related genera, equivalent to Gadow's "Subfamily Laniinæ,"^b to which the term Laniidæ may, for present purposes at least, be properly restricted, since there is very great doubt whether the remaining groups comprising Dr. Gadow's Laniidæ (Gymnorhininæ, Malaconotinæ, Pachycephalinæ, and Vireoninæ) can, any of them, be properly included in the same family; and this is equally if not even more true of the Artamidæ, Campephagidæ, Dicuridæ, and Prionopidæ, by some authors also included in the Laniidæ.

As here restricted, the Laniidæ constitute a fairly well-defined group, peculiar to the Nearctic, Palæarctic, Indian, and African Regions, but only sparingly represented in the first-named, which possesses but a single genus, with only two species, while in the Eastern Hemisphere four genera and about fifty species are recognized.

Taking the genus *Lanius* as the most typical example of the family, it may be stated that the shrikes are peculiar in several of their habits, especially in their practice of impaling insects, small birds, and small mammals upon thorns. The purpose of this curious habit is not known with certainty; but the most plausible explanation seems to be that suggested by Mr. Seebohm,^c which is that the shrike, not having sufficiently powerful feet to hold its prey while it is being torn to pieces, therefore avails itself of the aid of a thorn (or, in some case, a crotch) to hold its food while it is being eaten. This does not, however, explain why the shrike's victims are so often found in such positions unmutilated, as if placed there for future use or from mere wantonness.

The food of shrikes consists of the larger insects (grasshoppers,

^a At least not in the typical members of the group, though the species of an African genus (*Laniarius*) usually, and perhaps correctly, referred to this family are very brightly colored birds.

^b Cat. Birds Brit. Mus., viii, 1883, pp. 89, 228.

^c History of British Birds and their Eggs, vol. i, p. 594.

beetles, etc.), spiders, small frogs, and reptiles, and frequently small birds and mammals, such as mice and shrews. Their favorite position, when resting, is the summit of an isolated small tree or stake, a telegraph wire, or some other prominent object, from which they can command a wide view in all directions. When flying from one resting place to another the shrike sweeps downward from its perch and then pursues an undulating flight a few feet above the surface of the ground. The ordinary notes of the true shrikes are harsh, often grating, but most of the species are capable of producing a variety of sounds, in some closely approximating a song; some, indeed, are possessed of considerable musical ability, which some persons, doubtless without reason, suppose to be practiced for the purpose of enticing small birds within their reach. Their bulky nests are placed in thickly branched trees, usually among thorny twigs or among intertwining vines, and are usually lined with soft feathers; the eggs, four to seven in number, are spotted or freckled with olive-brown on a whitish, buffy, or pale greenish ground color.

Genus LANIUS Linnæus.

Lanius LINNÆUS, Syst. Nat., ed. 10, i, 1758, 93. (Type, by elimination, *L. excubitor* Linnæus.)

Collurio BRISSON, Orn., ii, 1760, 151. (Type, *Lanius excubitor* Linnæus.)

Enneoctonus BOIE, Isis, 1826, 973. (Type, *Lanius excubitor* Linnæus.)

Enneoctornis (emendation) LAYARD, Birds South Africa, 1867, 158.

Phoneus KAUP, Entw. Europ. Thierw., 1829, 33. (Type, *Lanius rufus* Retzius.)

Fiscus BONAPARTE, Compt. Rend., xxxviii, 1854, 386. (Type, *Lanius collaris* Linnæus.)

Leucometopon BONAPARTE, Compt. Rend., xxxviii, 1854, 386. (Type, *Lanius nubicus* Lichtenstein.)

Otomela BONAPARTE, Compt. Rend., xxxviii, 1854, 386. (Type, *Lanius cristatus* Linnæus.)

Cephalophoneus FITZINGER, Sitz. K. Akad. Wien, xli, 1864, 205. (Type, *Lanius bucephalus* Temminck and Schlegel.)

The characters of the genus *Lanius* are the same as those given for the family *Laniidæ*, on pages 232, 233, except that the tenth primary is always well developed, though never more than half as long as the ninth, the feathers of the pileum and neck are never lanceolate, the plumage never spotted (though barred or vermiculated in young birds), and the tail neither even nor excessively graduated. The American species, together with their nearest Old World allies, agree in the following characters of coloration:

Adults.—Plain gray above, the sides of the head, wings, and tail black; the wings with a white patch at base of primaries and tail with much white on exterior rectrices; lower parts whitish.

Young.—Essentially similar to adults, but colors less strongly contrasted, the gray and white more or less tinged with brownish, and

more or less vermiculated, or "waved," with narrow dusky bars; wing-coverts tipped with dull light buffy.

Nidification.—Nest bulky, placed in thorny trees or shrubs or among thick growth of vines, open above, composed of twigs, weed-stalks, grass-stems, etc., lined with wool or feathers. Eggs 4-7, whitish, densely speckled with brown or olive.

Range.—Entire Nearctic and Palearctic Regions, together with portions of the African and Indo-Malayan Regions; chiefly developed in the Eastern Hemisphere, the Western possessing only two species.

KEY TO THE SPECIES AND SUBSPECIES OF *LANIUS*.

- a. Exposed culmen longer than middle toe without claw; wing not less than 110,^a usually much more; lores and nasal tufts never wholly black, sometimes without any black.
 - b. A more or less obvious whitish mark on lower eyelid; adults with chest and sides of breast more or less distinctly vermiculated with grayish or dusky. (Northern North America, southward in winter over greater part of United States.) *Lanius borealis* (p. 237)
 - bb. No whitish mark on lower eyelid; adults without vermiculations on chest, etc. (Northern Asia and Europe.) *Lanius sibiricus* (extralimital)^b
- aa. Exposed culmen shorter than middle toe without claw; wing not more than 106 (usually much less); lores and nasal tufts wholly black in adults. (*Lanius ludovicianus*.)
 - b. More white on tail, the outermost rectrix with much less than one-third its sub-basal portion black (this usually mostly concealed by under tail-coverts).
 - c. Tail averaging decidedly longer than wing (wing averaging 95.1, tail 99, in adult male); bill larger and more strongly uncinate, the exposed culmen averaging 16; under parts more purely and uniformly white. (South Atlantic and Gulf States.) *Lanius ludovicianus ludovicianus* (p. 241)

^aIf the wing measures less than 110 mm., as may sometimes be the case in immature birds, the other characters mentioned, and also the conspicuously vermiculated under parts and more brownish upper parts, will serve readily to distinguish the species from any of the forms of *L. ludovicianus*.

^b*Lanius borealis* Vieillot, Ois. Am. Sept., i, 1807, 80, part (e. Siberia).—*Lanius major* (not of Wilkes, 1812) Pallas, Zoogr. Rosso-Asiat., i, 1826, 402 (northern Russia; Siberia).—Seebohm, Hist. Brit. Birds, i, 1883, 595 (Scotland and England; rare winter visitant).—Cabanis, Journ. für Orn., 1873, 75 (crit.).—Schalow, Journ. für Orn., 1875, 232 (crit.), 346 (northern Europe); 1876, 132, 232 (German localities); Bericht. über die xxi, Versamml. deutsch. Orn. Gesellsch., 1875, 13, 14.—Tschusi von Schmidhofen, Journ. für Orn., 1878, 96.—Stejneger, Orn. Centralbl., 1878, 108.—Collett, Archiv. for Math. og Naturvidensk., 1878, 180-185 (crit.).—Gadow, Cat. Birds Brit. Mus., viii, 1883, 239.—(?)*L[anius] major* Schalow, Auk, i, 1884, 292, in text (near mouth of Chilcat R., Alaska).—*L[anius] excubitor, forma major*, Collett, Ibis, Jan., 1886, 40 (crit.); Archiv. for Math. og Naturvidensk., 1893, 60 (crit.).—*Lanius excubitor* (not of Linnæus) Meves, Öfv. k. Vet.-Ak. Förh., 1871, 762.—Nordmann, Demid. Voy., ii, 1839, 113.—Middendorff, Sibir. Reise, ii, 1853, 188.—*Lanius borealis sibiricus* Bogdanow, Russian Shrikes, etc., 1881, 102.—*L[anius] borealis sibiricus* Ridgway, Man. N. Am. Birds, 1887, 466.—*Lanius sibiricus* Stejneger, Proc. U. S. Nat. Mus., xvi, no. 931, June 6, 1893, 217, 218 (Askold, e. Siberia; Yesso, Japan; crit.).—*Lanius borealis europæus* Bogdanow, Russian Shrikes, etc., 1881, 103.—*Lanius lahtora* (not of Sykes) David and Oustalet, Ois. Chine, 1877, 93.

This form is introduced into the "key" on account of its alleged (and possible) occurrence in Alaska.

- cc. Tail averaging shorter than wing; bill smaller and less strongly uncinate, the exposed culmen averaging much less than 16; under parts less purely or uniformly white.
- d. Back, etc., darker slate-gray, the upper tail-coverts less purely or abruptly white or not at all whitish, the scapulars less extensively white; under parts less purely white; slightly smaller (wing averaging not more than 98.2, tail not more than 97.8, in adult males).
- e. Gray of upper parts clearer, not passing into whitish on upper tail-coverts; chest never (?) with distinct undulations; tail relatively shorter (wing averaging 98.2, tail 94.6, in adult male). (More northern United States and more southern British Provinces, east of Great Plains; south to Louisiana, Texas, etc., in winter.) *Lanius ludovicianus migrans* (p. 243)
- ee. Gray of upper parts duller, usually passing more or less abruptly into whitish on upper tail-coverts; chest often with more or less distinct undulations; tail relatively longer (wing averaging 98, tail 97.8, in adult male). (Pacific coast district, from British Columbia to Lower California; in winter southward through western Mexico as far as State of Morelos.) *Lanius ludovicianus gambelli* (p. 249)
- dd. Back, etc., paler slate-gray, or approaching no. 6 gray; the upper tail-coverts conspicuously white or whitish, the scapulars more extensively white; under parts more purely white; slightly larger (wing averaging 100.7, tail 99.4, in adult male). (Arid interior districts of North America, from the Saskatchewan Plains and eastern British Columbia to northern Mexico; southward in winter over whole of Mexico to Isthmus of Tehuantepec.) *Lanius ludovicianus excubitorides* (p. 246)
- bb. Less white on tail, the outermost rectrix with more than the middle third black, showing conspicuously beyond under tail-coverts; gray of upper parts darker than in other forms.
- c. Upper tail-coverts abruptly white or whitish; sides and flanks more faintly tinged with gray; white spot at base of primaries larger.
- d. Larger, with smaller bill (adult female ^a averaging wing 98.5, tail 98.5, exposed culmen 13.8). (Southern portion of Mexican plateau.)
Lanius ludovicianus mexicanus (p. 248)
- dd. Smaller, with larger bill (adult female averaging wing 94.3, tail 94.7, exposed culmen 15.7). (San Clemente Island, southern California, and Santa Margarita Island, Lower California).
Lanius ludovicianus mearnsi (p. 252)
- cc. Upper tail-coverts concolor with back; sides and flanks deep gray (no. 6); white spot at base of primaries much smaller. (Santa Cruz Island, southern California.) *Lanius ludovicianus anthonyi* (p. 251)

In addition to the forms mentioned in the "key" two other species for a long time passed current as North American, but have since proven to be well-known Palearctic species. These are the following:

(1) *Lanius elegans* Swainson (= *Lanius lahtora* Sykes).

Lanius elegans SWAINSON, Fauna Bor.-Am., ii, 1831, 122 ("Fur Countries;" type in coll. Brit. Mus.).—NUTTALL, Man. Orn. U. S. and Can., 2d ed., 1840, i, 287.—BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 328; Rep. Pacific R. R. Surv., ix, 1858, 324, footnote (excl. syn. part).—BONAPARTE, Rev. et Mag. de Zool., 1853, 295.—COUES, Birds Col. Val., 1878, 545.

^a Measurements of adult females only are given of these three dark-colored forms, for the reason that I have not been able to examine males of *L. l. mearnsi* and *L. l. anthonyi*.

- Collyrio elegans* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, p. xxxv; Cat. N. Am. Birds, 1859, no. 239, part.
- Collurio elegans* BAIRD, Review Am. Birds, June, 1866, 444, part (in synonymy).—COOPER, Orn. Cal., 1870, 140, part (quotation of original description and in synonymy).
- Lanius lahtora* RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880, 236.
- (See Dresser and Sharpe, Proc. Zool. Soc. Lond., 1870, 595; Ridgway, Am. Nat., vii, 1873, 609; Coues, Birds Col. Val., 1878, 545.)
- (2) *Lanius ludovicianus robustus* (Baird) = *Lanius algeriensis* Lesson.
- Lanius elegans* (not of Swainson) CASSIN, Proc. Ac. Nat. Sci. Phila., ix, 1857 (1858), 213 ("California").—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 328, footnote, part (not the description); ed. 1860 (Birds N. Am.), atlas, pl. 75, fig. 1.
- Collyrio elegans* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, p. xxxv; Cat. N. Am. Birds, 1859, no. 239, part.
- Collurio elegans* BAIRD, Review Am. Birds, Aug. 1866, 444, part.—COOPER, Orn. Cal., 1870, 140, part, including fig.
- Collyrio excubitoroides* (not *Lanius excubitorides* Swainson) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 327, part.
- Collurio ludovicianus* (not *Lanius ludovicianus* Linnæus) COUES, Key N. Am. Birds, 1872, 125, part.
- Collurio ludovicianus*, var. *robustus* BAIRD, Am. Nat., vii, Oct., 1873, 608 (California; coll. Acad. Nat. Sci. Phila.).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 420; iii, 1874, 508.
- Lanius ludovicianus robustus* RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 175, 216; Nom. N. Am. Birds, 1881, no. 149b.
- Lanius robustus* GADOW, Cat. Birds Brit. Mus., viii, 1883, 243.—STREJNEGER, Proc. Ac. Nat. Sci. Phila., 1885, 91-96 (crit.).—RIDGWAY, Auk, xiv, 1897, 323 (crit.).
- L[anius] robustus* RIDGWAY, Man. N. Am. Birds, 1887, 468.
- Collyrio ludovicianus*, var. *robustus* COLLETT, Archiv. Mathem. og Naturvid. Kristiania, 1878, 181, in text (crit.).
- Lanius bairdi* STREJNEGER, Archiv. Math. Naturvidensk. Kristiania, iii, 1878, 326, 330 (= *Collyrio elegans* Baird); iv, 1879, 263.

LANIUS BOREALIS Vieillot.

NORTHERN SHRIKE.

Adult male.—Above plain light bluish gray,^a changing to white on lower rump, upper tail-coverts, posterior scapulars, superciliary region, and anterior portion of forehead; lower portion of latero-frontal tuft and spot in front of eye black, the intervening space dusky gray; auricular region black, this extending forward beneath lower eyelid and confluent with the black anteorbital space; wings and tail black; secondaries and innermost primaries tipped with white (the latter more narrowly); base of primaries (except three outermost) white across both webs, showing as a more or less conspicuous patch; outermost rectrix white with a black spot or patch near base of inner web; second rectrix with base and extensive terminal portion white,

^aBetween gray no. 8 and cinereous of Ridgway's Nomenclature of Colors.

this extending farther toward base on outer web than on inner, on which the black of middle portion extends much farther toward tip on edge than next to shaft; third rectrix tipped with white for about 25-30 mm.; the remaining rectrices (except, sometimes, the middle pair) also tipped with white, but of decreasing extent; all the rectrices with concealed base white; malar region and under parts white, the chest and sides of breast marked with more or less distinct wavy bars or vermiculations of dusky grayish; bill entirely black in summer, dusky horn color with base of mandible paler (flesh colored in life) in winter;^a iris brown; legs and feet black.

Younger male (second year?).—Similar to the perfectly adult plumage, as described above, but gray of upper parts less pure, usually more or less tinged with olive; white of upper tail-coverts, etc., more or less obscured by gray; dusky vermiculations of chest, etc., much more distinct, extending more over sides.

Adult female.—Similar to the younger male, just described, but still duller in color, the gray darker (between gray no. 6 and mouse gray), black of remiges (except tertials) duller, and white of wings and tail more restricted; bill wholly black in summer, as in adult males.

Young male (first autumn and winter).—Similar to the duller colored adult females, but upper parts brownish gray or grayish brown (hair brown to broccoli brown or drab); lower rump and upper tail-coverts with more or less distinct vermiculations of darker; loreal region entirely light grayish; auricular region dusky instead of black; middle wing-coverts margined with pale drab or brownish buffy, and under parts much more extensively vermiculated, only the chin, lower abdomen, and anal region being immaculate.

Young female (in first autumn and winter).—Similar to the young male of corresponding season but browner, the color of upper parts approaching isabella color, the scapulars, lower rump, and upper tail-coverts washed with cinnamon-buff, under parts more or less washed with the same, especially on sides and flanks, greater wing-coverts edged with the same, and white at tips of secondaries and rectrices more or less buffy.

Young (first plumage).—Similar to the young in autumn and winter but posterior scapulars, lower back, and whole rump finely but indistinctly vermiculated, and throat, chest, and sides of breast pale buffy grayish finely vermiculated with darker.

Adult male.—Length (skins), 215-260 (239.3); wing, 112-121 (115.6); tail, 106-118 (111.1); exposed culmen, 17-19 (17.8); tarsus, 26.5-28 (27.3); middle toe, 15-17 (16.1).^b

^a There is no difference in plumage according to season in perfectly adult birds.

^b Thirty specimens.

Adult female.—Length (skins), 220–255 (233.1); wing, 110–118 (113.6); tail, 104.5–114 (108.7); exposed culmen, 17–18.5 (17.6); tarsus, 25–28.5 (27.2); middle toe, 14–16.5 (15.8).^a

Northern North America, breeding from Labrador to Alaska, and to an undetermined distance southward; ^b migrating southward in autumn and winter over greater part of United States, at least as far as Virginia, Kentucky, Kansas, New Mexico (Fort Wingate; Tulerosa), Arizona (Fort Whipple), and central California (Nicasio, Marysville, Calaveras County, etc.).

Lanius excubitor (not of Linnæus) FORSTER, Fauna Amer. Sept., 1771, 9; Philos. Trans., lxii, 1772, 386 (Severn River).—WILSON, Am. Orn., i, 1808, 74, pl. 5, fig. 1.—BONAPARTE, Journ. Ac. Nat. Sci. Phila., iii, 1824, 357; iv, 1824, 272.—AUDUBON, Orn. Biog., ii, 1834, 534, pl. 192.

Lanius borealis VIEILLIOT, Ois. Am. Sept., i, 1807, 80, part, pl. 50 (no type locality designated); Enc. Méth., ii, 1823, 728.—SWAINSON and RICHARDSON, Fauna Bor.-Am., ii, 1831, 11, pl. 33 (young).—TOWNSEND, Journ. Ac. Nat. Sci. Phila., viii, 1839, 152 (Columbia R.).—AUDUBON, Synopsis, 1839, 157; Birds Am., oct. ed., iv, 1842, 130, pl. 236.—THOMPSON, Nat. Hist. Vermont, 1853, 75.—CASSIN, Proc. Ac. Nat. Sci. Phila., 1857, 212.—JARDINE, Contr. Orn., 1850, 67 (Bermudas).—JONES, Nat. in Bermuda, 1859, 51.—MARTENS, Journ. für Orn., 1859, 212 (Bermudas).—WILLIS, Ann. Rep. Smithsonian Inst. for 1858 (1859), 281 (Nova Scotia).—DRESSER and SHARPE, Proc. Zool. Soc. Lond., 1870, 591 (monogr.).—FINSCH, Abh. Nat. Ver. Brem., iii, 1872, 39 (Chilcat R., Alaska).—COUES, Birds Col. Val., 1878, 558; Check List, 2d ed., 1882, no. 186.—MARSHALL, Oölogist, v, 1879, 16 (habits).—BREWER, Bull. Nutt. Orn. Club, iv, 1879, 120 (New England range).—DREW, Bull. Nutt. Orn. Club, vi, 1881, 89 (San Juan Co., Colorado, fall and winter; feeds on titmice).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 148; Orn. Illinois, i, 1889, 198.—GADOW, Cat. Birds Brit. Mus., viii, 1883, 240.—HARTLAUB, Journ. für Orn., xxxi, 1883, 270 (Berners Bay and Lynn Canal, Alaska).—BICKNELL,

^a Nineteen specimens.

Specimens from different geographic areas average, respectively, as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle Toe.
MALES.					
Ten adult males from Atlantic district.....	114.3	109.8	17.6	27.1	15.8
Ten adult males from Mississippi Valley and plains dis- trict.....	115	111.8	17.9	27.3	16.1
Ten adult males from Pacific district, including Alaska...	117.4	112.7	17.9	27.5	16.2
FEMALES.					
Ten adult females from Atlantic district.....	111.9	106.9	17.4	26.7	15.4
Five adult females from interior district.....	114.7	109.8	17.9	27.7	16.1
Four adult females from Pacific district.....	116.5	111.7	17.7	27.9	16.4

After carefully comparing 150 specimens, including 30 adult males, I am unable to appreciate any differences according to geographic area warranting separation of the species into two subspecies, the coloration being, apparently, quite the same where specimens of corresponding age and sex are compared.

^b I have not been able to find an unquestionable record of this species breeding anywhere within the limits of the United States.

- Auk, i, 1884, 324 (song).—McLENNAN, Cruise "Corwin," 1884, 114 (Kowak R., Alaska).—TURNER, Proc. U. S. Nat. Mus., viii, 1885, 238 (Fort Chimo, Ungava, breeding).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 621.—BUTLER, Bull. Brookv. Soc. N. H., no. 2, 1886, 33 (Franklin Co., Indiana, winter visitant); Birds Indiana, 1897, 1005 (whole state in winter, but rare in southern portion).—TOWNSEND, Auk, iv, 1887, 13 (Kowak R., Alaska).—COOKE, Bird Migr. Miss. Val., 1888, 232 (localities and dates).—EVERMANN, Auk, vi, 1889, 26 (Carroll Co., Indiana, Jan. 8 and 19, 1884).—MACFARLANE, Proc. U. S. Nat. Mus., xiv, 1891, 444 (Fort Anderson, Mackenzie; descr. nest and eggs).—GOSS, Hist. Birds Kansas, 1891, 515 (common winter visitant).—NEHRING, Our Native Birds, etc., i, 1903, 315.—BREWSTER, Auk, xi, 1894, 329 (habits).—OSGOOD, N. Am. Fauna, no. 21, 1901, 79 (Hope and Fort Kenai, Alaska; crit.).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 392.
- L[anius] borealis* GRAY, Gen. Birds, i, 1847, 294.—COUES, Key N. Am. Birds, 2d ed., 1884, 337.—RIDGWAY, Man. N. Am. Birds, 1887, 466.
- Collyrio borealis* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 324; Cat. N. Am. Birds, 1859, no. 236.—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 188 (Washington, winter).—COUES and PRENTISS, Ann. Rep. Smithsonian Inst. for 1861 (1862), 409 (District Columbia, rare in winter).—BLAKISTON, Ibis, 1862, 5 (bet. Hudson Bay and Lake Winnipeg); 1863, 65 (Saskatchewan, winter).—FEILNER, Ann. Rep. Smithsonian Inst. for 1864 (1865), 425 (Fort Crook, n. California).—COUES, Proc. Ac. Nat. Sci. Phila., 1866, 73 (Fort Whipple, Arizona).—LORD, Naturalist in Vancouver, ii, 1866, 295 (Vancouver I.).—LAWRENCE, Ann. Lyc. N. Y., viii, 1866, 285 (near New York City).—McILWRAITH, Proc. Essex Inst., v, 1866, 87 (Hamilton, Ontario).—COOPER, Am. Nat., iii, 1869, 35.—HAYMOND, Cox's Geol. Surv. Indiana, 1869, 219 (habits).—DALL and BANNISTER, Trans. Chicago Acad. Sci., i, 1869, 280 (Nulato, Alaska).—STEVENSON, Prelim. Rep. U. S. Geol. Surv., 1871, 464 (Green R. and Rock Creek, Wyoming).
- Collurio borealis* BAIRD, Review Am. Birds, June, 1866, 440.—COOPER, Orn. Cal., 1870, 137.—COUES, Check List, 1873, no. 134; Birds N. W., 1874, 101.—AIKEN, Proc. Bost. Soc. N. H., xv, 1872, 198 (Colorado).—RIDGWAY, Bull. Essex Inst., v, 1873, 181 (Colorado); Orn. 40th Parallel, 1877, 452 (Carson City, Nevada, Feb. 21, Mar. 25).—SNOW, Birds Kansas, 1873, 15 (e. Kansas, common in winter).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 415, pl. 19, figs. 1, 2.—HENSHAW, Zool. Exp. W. 100th Merid., 1875, 233 (s. Utah, late fall).—LANGDON, Birds Cinc., 1877, 7 (vicinity Cincinnati, rare winter visit).—BREWSTER, Bull. Nutt. Orn. Club, vi, 1881, 239 (as to alleged breeding in New England).
- [*Collurio*] *borealis* COUES, Key N. Am. Birds, 1872, 125.
- [*Collurio*] *borealis* NELSON, Bull. Essex Inst., viii, 1876, 104, 152 (n. e. Illinois, last of Oct. to first of Mar.).
- L[anius] excubitor, forma borealis* COLLETT, Ibis, 1886, 40, in text; Archiv. for Mathem. Naturvid., 1893, 60, in text (crit.).
- Lanius septentrionalis* (not of Gmelin) SHAW, Gen. Zool., vii, 1809, 331.—BONAPARTE, Ann. Lyc. Nat. Hist. N. Y., ii, 1826, 72, 438; Geog. and Comp. List, 1838, 26; Consp. Av., i, 1850, 363; Rev. et Mag. Zool., 1853, 294.—GAMBEL, Journ. Ac. Nat. Sci. Phila., i, 1847, 44 (California); Proc. Ac. Nat. Sci. Phila., 1847, 44 (do.).—CASSIN, Proc. Ac. Nat. Sci. Phila., 1857, 213.
- Collyrio chemungensis* GREGG, Proc. Elmira Acad., i, 1870, p. 9 of reprint (Chemung Co., New York;=young).
- Lanius borealis americanus* BOGDANOW, Russian Shrikes, etc., 1881, 102.

(?) *Lanius major* (not of Pallas) CABANIS, Journ. für. Orn., 1884, 251 (Chilcat R., Alaska).—SCHALOW, Auk, i, 1884, 292 (Chilcat R.).

Lanius borealis invidius GRINNELL (J.), Pacific Coast Avifauna, no. 1, Nov. 14, 1900, 54 (Kowak R., Alaska; coll. J. Grinnell); no. 3, 1902, 61 (south to Nicasio, Marysville, and Calaveras Co., California, in winter); Condor, iii, 1901, 22 (Kadiak, Alaska).—ALLEN, Auk, xviii, 1901, 177 (republishing of orig. descr.).

LANIUS LUDOVICIANUS LUDOVICIANUS Linnæus.

LOGGERHEAD SHRIKE.

Adults (sexes alike).—Above plain slate-gray, darkest (approaching slate-color) on pileum, fading gradually into paler gray (no. 6 to no. 8) on upper tail-coverts and into white on outermost scapulars; lores, orbital region, and auricular region black, forming a conspicuous longitudinal patch on sides of head; the gray of forehead paling slightly along upper margin of the loreal portion of this black patch; wings and tail black; secondaries tipped with white; a white patch at base of primaries (except the outermost), this occupying both webs, and more extended but less sharply defined on inner webs than on outer; inner webs of secondaries dusky next to shaft for entire length, the marginal portion broadly^a and rather abruptly grayish white on basal portion but becoming narrower and less definite terminally; rectrices (except two middle pairs^b) broadly tipped with white, this greatly increasing in extent to the outermost, which is white for much the greater part, only a subbasal spot on inner web and part of shaft being blackish; entire under parts, including malar region, white, the sides and flanks faintly shaded with gray, the chest also sometimes with a very faint shade of the same; bill, legs, and feet black; iris brown.

Young.—Above brownish gray (smoke gray), the pileum and hind-neck narrowly barred or vermiculated with narrow lines of darker gray and broader ones of pale buffy or brownish gray; scapulars, lesser and middle wing-coverts, rump, and upper tail-coverts with more distinct narrow dusky bars and with the paler bars broader, more buffy; greater wing-coverts and secondaries tipped with grayish buffy, varying to pale cinnamon; chest, sides, and flanks pale buffy grayish or grayish buffy narrowly barred or vermiculated with dusky; otherwise similar to adults but with black patch on sides of head less sharply defined and duller black (especially the loreal portion), white portion of tail more or less strongly (sometimes deeply) tinged with buff or cinnamon, and with bill and feet brownish.

^aOccupying more than half the width of the web.

^bThe pair next to the middle usually have a small white terminal spot.

Adult male.—Length (skins), 200–223 (211.3); wing, 91–99 (95.1); tail, 92–104 (99); exposed culmen, 14.5–17 (16); tarsus, 27–28 (27); middle toe, 16–18 (17).^a

Adult female.—Length (skins), 197–217 (211.1); wing, 88–98 (92.9); tail, 89–101 (96.3); exposed culmen, 15.5–16.5 (16.1); tarsus, 25–27 (26); middle toe, 15–17 (15.8).^b

Coast district of South Carolina and Georgia to southern Florida, and westward over the coastal plain of the Gulf States to Louisiana.^c

[*Lanius*] *ludovicianus* LINNÆUS, Syst. Nat., ed. 12, i, 1766, 134 (based on *Pie-griesche de la Louisiane*, *Lanius ludovicianus*, Brisson, Orn., i, 1760, 162, pl. 15, fig. 2).—GMELIN, Syst. Nat., i, 1788, 298, part (not of p. 302^d).—LATHAM, Index Orn., i, 1790, 69, part.

Lanius ludovicianus BONAPARTE, Ann. Lyc. N. Y., ii, 1826, 26, 72; Geog. and Comp. List, 1838, 26; Consp. Av., i, 1850, 363.—AUDUBON, Orn. Biog., i, 1831, 300, pl. 37; Birds Am., oct. ed., iv, 1842, 135, pl. 237.—(?) JARDINE, Contr. Orn., 1848, 83 (Bermudas, 1 spec., spring 1847).—SWAINSON, Fauna Bor.-Am., ii, 1831, 118, in text (crit.).—BREHM, Journ. für Orn., 1854, 145 (monogr.).—GUNDLACH, Journ. für Orn., 1855, 469 (Cuba?; see Journ. für Orn., 1861, 404).—CASSIN, Proc. Ac. Nat. Sci. Phila., 1857, 213 (monogr.).—(?) BLAND, Ann. Rep. Smithsonian Inst. for 1858 (1859), 287 (Bermudas).—SCLATER, Cat. Am. Birds, 1862, 359.—DRESSER and SHARPE, Proc. Zool. Soc. Lond., 1870, 595, part (monogr.).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 149, part.—COUES, Check List, 2d ed., 1882, no. 187.—GADOW, Cat. Birds Brit. Mus., viii, 1883, 245, part.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 622, part.—SCOTT, Auk, vii, 1890, 14 (Tarpon Springs, Punta Rassa, etc., s. w. Florida; not observed at Key West).—MORTIMER, Auk, vii, 1890, 342 (Orange Co., Florida; habits).—SHARPE, Bull. Brit. Orn. Club, no. xlvii, 1897, p. vii (Andros I., Bahamas).

[*Lanius ludovicianus*] *α. ludovicianus* RIDGWAY, Orn. Illinois, i, 1889, 194, part (in synonymy).

Lanius ludovicianus ludovicianus PALMER (W.), Auk, xv, July, 1898, 248 (crit.).

^aSeventeen specimens.

^bTen specimens, from Florida.

Specimens from South Carolina and Georgia compare in average measurements with Florida examples as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Ten adult males from Florida.....	95.2	99.2	16.2	27	17
Seven adult males from Georgia and South Carolina.....	96.3	98.8	15.6	27.1	17.1

In coloration the two series agree minutely.

^cI have not been able to examine satisfactory specimens from Louisiana, and have doubts as to whether the birds from that State (the true *L. ludovicianus*) are identical with those from Florida, Georgia, and South Carolina. If different the latter (upon which, exclusively, the above descriptions are based) should be called *Lanius ludovicianus ardosiacus* (Vieillot).

^d = *Tyrannus tyrannus*.

- L[anius] ludovicianus* CABANIS, Mus. Hein., i, 1850, 74, part.—COUES, Key N. Am. Birds, 2d ed., 1884, 338.—RIDGWAY, Man. N. Am. Birds, 1887, 467, part.
- (?) *Lanius ludovicus* HURDIS, Jardine's Contr. Orn., 1850, 8 (Bermudas, autumn and winter).
- Collyrio ludovicianus* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 325; Cat. N. Am. Birds, 1859, no. 237.—TAYLOR, Ibis, 1862, 128 (Florida).
- [*Collyrio*] *ludovicianus* GRAY, Hand-list, i, 1869, 391, no. 5935.
- Collurio ludovicianus* BAIRD, Review Am. Birds, June, 1866, 443 (Liberty Co. and Savannah, Georgia).—COUES, Proc. Bost. Soc. N. H., xii, 1868, 112 (South Carolina; habits); Check List, 1873, no. 135.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 418, pl. 19, fig. 4.
- [*Collurio ludovicianus*] var. *ludovicianus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 413.
- [*Collurio*] *ludovicianus* COUES, Key N. Am. Birds, 1872, 125.
- [*Lanius ludovicianus excubitorides*] a. *ludovicianus* COUES, Birds Col. Val., 1878, 561 (synonymy).
- [*Lanius*] *americanus* LATHAM Index Orn., i, 1790, 69 (Louisiana; based on *Piegriesche de la Louisiane* Daubenton, Pl. Enl., pl. 397).
- Lanius ardosiaecus* VIEILLIOT, Ois. Am. Sept., i, 1807, 81, pl. 51 (Georgia, Florida, and Louisiana); Enc. Méth., ii, 1823, 729.—BONAPARTE, Ann. Lyc. N. Y., ii, 1826.
- (?) *Lanius ardosiaecus* BONAPARTE, Proc. Zool. Soc. Lond., 1837, 112.
- Lanius carolinensis* WILSON, Am. Orn., iii, 1811, 57, pl. 22, fig. 5.—LICHTENSTEIN, Verz. Doubl., 1823, no. 505.—BONAPARTE, Journ. Ac. Nat. Sci. Phila., iii, 1824, 358; iv, 1824, 272.—LESSON, Traité d'Orn., 1831, 373.—HARTLAUB, Naumannia, ii, 1852, 52 (Cuba?).

LANIUS LUDOVICIANUS MIGRANS Palmer.

NORTHERN LOGGERHEAD SHRIKE.

Practically identical in coloration with *L. l. ludovicianus*, but gray of upper parts averaging slightly paler^a (especially the gray along upper margin of the black loreal space) and under parts less purely white, having, as a rule, a more decided tinge of gray to the white of the chest, sides, and flanks; proportions distinctly different, the bill being much smaller and the tail decidedly shorter than wing, instead of the reverse. Young practically indistinguishable from that of *L. l. ludovicianus*, but perhaps averaging slightly more buffy and more coarsely vermiculated above.

^a One specimen, however, from southern Illinois (no. 107476, coll. U. S. Nat. Mus., Mount Carmel, Jan. 5, 1886; J. J. Turner) has the upper parts quite as dark as the darkest example of *L. l. ludovicianus* and the under parts darker than in any other example of the species, being entirely pale gray (between no. 7 and no. 8 of my Nomenclature of Colors), including even the axillars, under wing-coverts, and under tail-coverts. An adult male from Lexington, Kentucky (no. 168822, coll. U. S. Nat. Mus., Nov. 21, 1898; Dr. Edgar A. Mearns), is absolutely indistinguishable in coloration from the darker specimens of *L. l. ludovicianus*. Both these specimens are, however, referable to *L. l. migrans* according to proportions, each having the small bill of that form and the tail shorter than the wing.

Adult male.—Length (skins), 190–219 (205.1); wing, 95–102 (98.2); tail, 86–98 (94.6); exposed culmen, 13.5–16 (14.9); tarsus, 26–27 (26.7); middle toe, 16–18 (16.6).^a

Adult female.—Length (skins), 193–218 (205.7); wing, 92–101 (96.5); tail, 88–97 (93.1); exposed culmen, 14–16 (14.9); tarsus, 26–28 (27.2); middle toe, 16–17 (16.2).^b

Greater part of United States east of the Great Plains, but very local in more eastern districts; breeding north to New Brunswick (York County), Maine (Bangor), New Hampshire (Hanover), Vermont (Mount Mansfield, etc.), northern New York (Lewis and St. Lawrence counties), Quebec (Montreal), Ontario (Hamilton; Kingston; Beau-maris), Michigan, Wisconsin, and Minnesota, and southward to mid-land Virginia and western North Carolina, Kentucky (probably also Tennessee^c), and eastern Kansas; in winter, southward to Mississippi, Louisiana, and Texas (El Paso, February; Fort Clark, January; West Caranchua Creek, January; Washburn, August).

Lanius excubitoroides (not *L. excubitorides* Swainson) PEABODY, Rep. Orn. Mass., 1839, 292 (Boston, Massachusetts, in winter).

Lanius excubitoroides HOY, Proc. Ac. Nat. Sci. Phila., 1853, 308 (Wisconsin).—HAYMOND, Proc. Ac. Nat. Sci. Phila., 1856, 290 (Indiana).

Collyrio excubitoroides BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 327, part (Marion Co., Illinois; Racine, Wisconsin; Independence, Missouri); Cat. N. Am. Birds, 1859, no. 238, part.—McILWRAITH, Proc. Essex Inst., v, 1866, 8 (Hamilton, Ontario).

Collurio excubitoroides BAIRD, Review Am. Birds, June, 1866, 445, part (Wisconsin; Michigan; Illinois).—COUES, Proc. Essex Inst., v, 1868, 277 (New England).—EATON, Oologist, iv, 1878, 2, 3 (New York; nesting habits).

[*Collurio ludovicianus*.] Var. *excubitoroides* COUES, Key N. Am. Birds, 1872, 125, part.

Collurio ludovicianus . . . var. *excubitoroides* COUES, Check List, 1873, no 135^a, part.

^a Nineteen specimens.

^b Twelve specimens.

There is a slight difference in measurements between eastern and western specimens, as indicated by the following averages:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe
MALES.					
Nine adult males from Ontario to Virginia	99.4	95.7	14.8	26.9	16.9
Ten adult males from Wisconsin to Kentucky	97.1	98.6	14.9	26.5	16.2
FEMALES.					
Six adult females from Maine to Virginia	97.2	94.3	14.7	27.2	16.2
Six adult females from Illinois	95.8	91.8	15.2	27.1	16

^c Owing to lack of specimens and records, the exact southern limits of the breeding range of this form are, like the northern limits of that of *L. l. ludovicianus*, unknown.

- Collurio ludovicianus*, var. *excubitoroides* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 421, part.—PURDIE, Bull. Nutt. Orn. Club, ii, 1887, 21 (Cranston, Rhode Island, 1 spec., Sept. 2).—MERRIAM, Bull. Nutt. Orn. Club, iii, 1878, 54 (Lewis Co., New York).—LANGDON, Bull. Nutt. Orn. Club, iv, 1879, 120 (Madisonville, Ohio, Aug. 22).
- [*Collurio*] *ludovicianus*, var. *excubitoroides* NELSON, Bull. Essex Inst., viii, 1876, 104 (Illinois, chiefly on prairies).
- Lanius ludovicianus excubitoroides* MERRIAM, Bull. Nutt. Orn. Club, vi, 1881, 228 (Lewis Co., New York, breeding).
- Collurio ludovicianus* var. *excubitoroides* . . . b. *excubitoroides* COUES, Birds N. W., 1874, 102, part.
- [*Collurio*] *ludovicianus* . . . var. *excubitoroides* RIDGWAY, Ann. Lyc. N. Y., x, 1874, 371 (Illinois).
- Lanius ludovicianus excubitoroides* COUES, Birds Col. Val., 1878, 561, part; Check List, 2d ed., 1882, no. 188, part.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 149a, part.—CAHOON, Forest and Stream, xix, no. 12, Oct., 1882 (Taunton, Massachusetts, Sept. 12).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 622a, part.—COOKE, Bird Migr. Miss. Val., 1888, 233, part (Minnesota; Iowa; Wisconsin; Illinois; Indian Territory?).—AVERILL, Auk, vi, 1889, 74 (Bridgeport, Connecticut, 5 specimens, August).—MILLER, Auk, viii, 1891, 119 (Cape Cod, Massachusetts, Aug. 22).—McILWRAITH, Birds Ontario, 1894, 346 (Hamilton, Ontario, breeding).—ULREY and WALLACE, Proc. Ind. Acad. Sci., 1895, 156 (Wabash, Indiana, summer resid.).
- [*Lanius ludovicianus*] b. *excubitoroides* RIDGWAY, Orn. Illinois, i, 1889, 194 (excl. syn. part).
- Lanius ludovicianus* (not of Linnaeus) WOODHOUSE, in Sitgreaves' Expl. Zuffi and Col. R., 1853, 76 (Indian Territory; Texas).—Hoy, Proc. Ac. Nat. Sci. Phila., 1853, 308 (Wisconsin).—MINOT, Birds New Engl., 1877, 105 (Massachusetts).—DEANE, Bull. Nutt. Orn. Club, iv, 1879, 119 (Concord, New Hampshire, Jan. 20); v, 1880, 50 (Abbott, Maine, breeding).—PURDIE, Bull. Nutt. Orn. Club, iv, 1879, 186 (breeding at Bangor, Maine; Saybrook, Connecticut, Nov., Jan.).—SCOTT, Bull. Nutt. Orn. Club, iv, 1879, 223 (Long Beach, New Jersey, Apr. 5).—BAGO, Bull. Nutt. Orn. Club, iv, 1879, 237 (Oneida Co., New York, July 19).—LEE, Bull. Nutt. Orn. Club, v, 1880, 118 (St. Lawrence Co., New York, July 23, Aug. 9).—ALLEN, Bull. Nutt. Orn. Club, v, 1880, 118 (crit.).—KNOWLTON, Bull. Nutt. Orn. Club, iii, 1882, 64 (w. Vermont, breeding).—RIDGWAY, Bull. Nutt. Orn. Club, vii, 1882, 253 (District of Columbia).—WINTLE, Auk, i, 1884, 193 (Montreal, breeding).—BROWNE, Auk, i, 1884, 291 (Framingham, Massachusetts, Jan. 29).—FROST, Auk, ii, 1885, 379 (Hanover, New Hampshire, breeding; habits; descr. nest and eggs).—FOX, Auk, iii, 1886, 317 (Roane Co., Tennessee, Mar. 18, 20).—DUTCHER, Auk, vi, 1889, 138 (Suffolk Co., Long Island, Aug. 28).—CHAPMAN, Auk, vi, 1889, 304 (Tappan, New Jersey, Aug. 24).—GOSS, Hist. Birds Kansas, 1891, 517.—NEHRING, Our Native Birds, etc., i, 1893, 316, part, pl. 17, fig. 4.—STONE, Auk, xi, 1894, 139 (Cape May, New Jersey, summer).—McILWRAITH, Birds Ontario, 1894, 345 (near Hamilton).—BUTLER, Birds Indiana, 1897, 1006 (whole State; summer resid., wintering in southern part).—FLEMING, Auk, xviii, 1901, 43 (Beaumaris, n. Ontario).—MOORE, Auk, xviii, 1901, 196 (York Co., New Brunswick, breeding).
- L[anius] ludovicianus* RIDGWAY, Man. N. Am. Birds, 1887, 467, part.
- Collurio ludovicianus* ALLEN, Mem. Bost. Soc. N. H., i, 1868, 495 (w. Iowa); Am. Nat., 1869, 579 (New York and New England examples; crit.).—PURDIE, Am. Nat., vii, 1873, 115 (Massachusetts).—MAYNARD, Am. Sportsman, v, 1875, 313 (Newtonville, Massachusetts).—RIDGWAY, Bull. Nutt. Orn. Club,

- iii, 1878, 164 (Wabash Co., Illinois, breeding).—MERRIAM, Bull. Nutt. Orn. Club, iii, 1878, 53 (Lewis Co., New York, breeding).—SCOTT, Bull. Nutt. Orn. Club, iv, 1879, 82 (Princeton, New Jersey, Dec. 17).—BREWER, Bull. Nutt. Orn. Club, iv, 1879, 119 (Bangor, Maine, breeding).—MERRILL (H.), Bull. Nutt. Orn. Club, vi, 1881, 250 (Bangor, Maine, breeding).
Collyrio ludovicianus TRIPPE, Proc. Bost. Soc. N. H., xv, 1873, 235 (Iowa).—TENNEY, Am. Nat., xxi, 1887, 90 (Williamstown, Massachusetts).
Lanius ludovicianus migrans PALMER (W.), Auk, xv, July, 1898, 248 (Kingston, Ontario; coll. U. S. Nat. Mus.).—HOWELL, Auk, xviii, 1901, 343 (Mount Mansfield, Vermont, breeding).—HOWE, Auk, xix, 1902, 92 (Cape Cod, Massachusetts, 1 spec., Sept. 19).
Lanius ludovicianus (migrans) HOWE, Auk, xvi, 1899, 190 (Newport, Rhode Island, 1 spec., Aug. 29).

LANIUS LUDOVICIANUS EXCUBITORIDES (Swainson).

WHITE-RUMPED SHRIKE.

Similar to *L. l. migrans*, but gray of upper parts decidedly paler^a (between slate-gray and no. 6 gray), changing abruptly to white on upper tail-coverts; white of scapulars more extended (occupying practically the whole of scapular region) and more abruptly contrasted with gray of back; forehead and supraloral region paler gray than crown, sometimes whitish; under parts purer white; size averaging slightly larger. (Young practically undistinguishable from that of *L. l. migrans*.)

Adult male.—Length (skins), 197–215 (207.6); wing, 97–103 (100.7); tail¹, 92–105 (99.4); exposed culmen, 15–16 (15.3); tarsus, 27–29 (28.1); middle toe, 16.5–18 (17.1).^b

Adult female.—Length (skins), 200–210 (204.5); wing, 93–103 (98.7); tail, 92–102 (95.4); exposed culmen, 14–16 (14.8); tarsus, 27–29 (27.7); middle toe, 16–17 (16.6).^b

Arid districts of western United States and British Provinces, from eastern border of the Great Plains to western margin of the Great Basin (eastern Washington to southeastern California); north to Assiniboia (Long Lake), Saskatchewan (St. Louis), Manitoba (Carberry, etc.); breeding southward to Texas, New Mexico, Arizona, southeastern California, and over northern Mexico at least as far as State of Durango (Papasquero; Ciudad Durango)—probably to Sinaloa (vicinity of Mazatlan and Guanajuato; in winter,^c southward over whole of Mexico, as far as Isthmus of Tehuantepec.^d

^a The gray is darker in worn midsummer plumage.

^b Ten specimens.

^c Some of the specimens from Guanajuato are in worn plumage, as if taken during the breeding season, but unfortunately no date is recorded on the labels.

^d Winter specimens have been examined from the following localities in Mexico: Oaxaca (Tehuantepec City; Cuicatlan); Colima (plains of Colima); Vera Cruz (Mirador); Mexico (Amecameca; Tlalpam); Territory of Tepic (Tepic); Sinaloa (Mazatlan); Jalisco (Mascota); San Luis Potosi (Jesus Maria); Tamaulipas (several localities). Breeding birds have been examined from Durango (Papasquero; Ciudad Durango), and Chihuahua (Casas Grandes).

- Lanius excubitorides* SWAINSON, Fauna Bor.-Am., ii, 1831, 115, pl. 34.
- Lanius excubitoroides* BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 328.—WOODHOUSE, in Rep. Sitgreaves' Expl. Zuni and Col. R., 1853, 77 (Texas).
- [*Lanius*] *excubitoroides* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 13, part.
- Collyrio excubitoroides* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 327, part (excl. Mississippi Valley and most Californian localities); ed. 1860 (Birds N. Am.), atlas, pl. 75, fig. 2; Cat. N. Am. Birds, 1859, no. 238, part; Rep. Ives' Col. Exp., pt. v, 1861, 5; Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 11 (San Elizario and El Paso, Texas; Gila R., Arizona; Fort Yuma, California).—KENNERLY, Rep. Pacific R. R. Surv., x, pt. iv, no. 3, 1859, 25 (Little Colorado R., etc.).—COUES, Ibis, 1865, 164 (Arizona); Proc. Ac. Nat. Sci. Phila., 1866, 73 (Fort Whipple, Arizona).—BUTCHER, Proc. Ac. Nat. Sci. Phila., 1868, 149 (Laredo, Texas).—COOPER, Am. Nat., iii, 1869, 34, 295; Proc. Ac. Nat. Sci. Phila., 1870, 75.—STEVENSON, Prelim. Rep. U. S. Geol. Surv. for 1870 (1871), 464 (La Bonte Creek, Wyoming).
- [*Collyrio*] *excubitoroides* GRAY, Hand-list, i, 1869, 391, no. 5940, part.
- Collurio excubitoroides* BAIRD, Review Am. Birds, June, 1866, 445, part (localities in Idaho, Utah, Wyoming, Colorado, New Mexico, Dakota?, and Mexico; Lower California?).—(?) SUMICHRIST, Mem. Bost. Soc. N. H., i, 1869, 548, part (plateau region and temperate region Vera Cruz).—COOPER, Orn. Cal., 1870, 138, part.—AIKEN, Proc. Bost. Soc. N. H., xv, 1872, 198 (Colorado).—MERRIAM, Rep. U. S. Geol. Surv. Terr. for 1872 (1873), 677, 714 (Salt Lake, Utah; Fort Hall, Idaho).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 19, fig. 3.
- [*Collurio ludovicianus*.] Var. *excubitoroides* COUES, Key N. Am. Birds, 1872, 125, part.
- Collurio ludovicianus* . . . var. *excubitoroides* COUES, Check List, 1873, no. 135a, part.—RIDGWAY, Bull. Essex Inst., v, Nov. 1873, 181 (Colorado).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 43 (Utah), 60 (Denver, Colorado), 78 (Fort Garland, Colorado), 107 (Bowie, Arizona); Zool. Exp. W. 100th Merid., 1875, 233 (localities in Nevada, Utah, Colorado, and Arizona; habits).
- Collurio ludovicianus*, var. *excubitoroides* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 421, part.—NELSON, Proc. Bost. Soc. N. H., xvii, 1875, 340 (Fort Bridger, Wyoming), 346 (Salt Lake City, Utah), 353 (near Elks, Nevada).—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 272 (Mazatlan, Oct. to Apr.; Colima); Bull. U. S. Nat. Mus., no. 4, 1876, 18 (Tehuantepec City, Oaxaca; Oct.).
- Collurio ludovicianus excubitoroides* RIDGWAY, Bull. Essex Inst., vii, Jan., 1875, 11 (Carson Valley, Nevada; breeding).—SENNETT, Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 16 (Brownsville, Texas).
- Collurio ludovicianus* . . . β . *excubitoroides* RIDGWAY, Orn. 40th Parallel, 1877, 453, part (localities in Nevada and Utah).
- Collurio ludovicianus*, β . *excubitoroides* RIDGWAY, Field and Forest, May, 1877, 197 (Colorado).
- Collurio ludovicianus* var. *excubitoroides* . . . b . *excubitoroides* COUES, Birds N. W., 1874, 102, part.
- [*Lanius ludovicianus excubitorides*] b . *excubitoroides* COUES, Birds Col. Val., 1878, 562, part.
- Lanius ludovicianus excubitorides* COUES, Birds Col. Val., 1878, 561, part; Check List, 2d ed., 1882, no. 188, part.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 149a, part; Proc. U. S. Nat. Mus., ix, 1886, 138 (Huexotitla, Puebla, Oct.; crit.).—NEHRING, Bull. Nutt. Orn. Club, vii, 1882, 11 (s. e. Texas, breeding); Our Native Birds, etc., i, 1893, 316, in text, part.—BREWSTER, Bull.

- Nutt. Orn. Club, vii, 1882, 145 (Arizona; crit.); Bull. Mus. Comp. Zool., xli, 1902, 172 (Triunfo, Lower California, Dec.).—BELDING, Proc. U. S. Nat. Mus., v, 1883, 537 (La Paz, Lower California, winter).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 622a, part.—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 138 (Huexotitla and Puebla, Puebla, Oct.).—LLOYD, Auk, iv, 1887, 294 (Concho Co., etc., w. Texas; habits).—SCOTT, Auk, v, 1888, 31 (Tucson, Santa Catalina Mts., etc., Arizona).—BECKHAM, Proc. U. S. Nat. Mus., x, 1888, 683 (Corpus Christi, San Antonio, etc., Texas; habits).—COOKE, Bird Migr. Miss. Val., 1888, 233, part (w. Manitoba, w. Texas, etc.).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1890, 613 (Manitoba, summer; habits).—GOSS, Hist. Birds Kansas, 1891, 520 (resident, but chiefly summer).—FISHER, North Am. Fauna, no. 7, 1893, 114 (desert region, s. California and Nevada).—JOUY, Proc. U. S. Nat. Mus., xvi, 1894, 778 (Soledad, San Luis Potosi, Dec.; Nogales, Sonora, breeding; descr. nest).—GRINNELL (J.), Pub. ii, Pasadena Acad. Sci., 1898, 43, (Los Angeles Co., California, winter straggler); Pacific Coast Avifauna, no. 3, 1902, 61 (resident e. of Sierra Nevada, from Shasta Valley and Plumas Co. to Fort Yuma and Indio).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 392.
- L[anius] ludovicianus excubitorides* RIDGWAY, Man. N. Am. Birds, 1887, 467, part.
- Lanius ludovicianus excubitoroides* DREW, Bull. Nutt. Orn. Club, vi, 1881, 89 (San Juan Co., Colorado; habits).—ALLEN and BREWSTER, Bull. Nutt. Orn. Club, viii, 1883, 160 (Colorado Springs, Colorado).—SETON, Auk, iii, 1886, 325 (w. Manitoba).—ALLEN, Bull. Am. Mus. N. H., v, 1893, 40 (n. e. Sonora and n. w. Chihuahua, Sept., Feb.).
- C[ollurio] l[udovicianus] excubitorides* COUES, Key N. Am. Birds, 2d ed., 1884, 333.
- Lanius ludovicianus* (not of Linnæus) HENRY, Proc. Ac. Nat. Sci. Phila., 1855, 312 (New Mexico).—MAXIMILIAN, Journ. für Orn. 1858, 191 (Upper Missouri R.).—DRESSER and SHARPE, Proc. Zool. Soc. Lond., 1870, 595, part (crit.).—SALVIN and GODMAN, Biol. Centr.-Am. Aves, i, 1883, 213, part.—GADOW, Cat. Birds Brit. Mus., viii, 1883, 245, part (Jalapa, Vera Cruz; Mexico).
- Collyrio ludovicianus* (not of Baird) HENRY, Proc. Ac. Nat. Sci. Phila., 1859, 106, (New Mexico).—DRESSER, Ibis, 1865, 480 (San Antonio, Texas, sum. resid.).

LANIUS LUDOVICIANUS MEXICANUS (Brehm.)

MEXICAN SHRIKE.

Similar in coloration to *L. l. ludovicianus*, but the deep slate-gray of upper parts giving way abruptly to white or grayish white^a on upper tail-coverts; outermost rectrices with much less white, the inner web of outermost with more than middle third black; grayish white edging to inner webs of remiges broader, more distinct; bill decidedly smaller. Young decidedly darker than that of *L. l. ludovicianus* or any other of the conspecific forms, with chest and sides more densely vermiculated on a more decidedly grayish ground color.

Adult male.—Length (skins), 203–216 (206.2); wing, 96–106 (101.1); tail, 96–107 (100.3); exposed culmen, 14–16.5 (14.8); tarsus, 26–28 (27.1); middle toe, 16–17 (16.4).^b

^a In females the color is more gray than in males, but it is always conspicuously and abruptly different from that of the rump.

^b Eight specimens.

Adult female.—Length (skins), 200–212 (204.3); wing, 95–101 (98.5); tail, 93–101 (98.5); exposed culmen, 13–14.5 (13.8); tarsus, 26–27 (26.6); middle toe, 16–17 (16.3).^a

Southern Mexico, from southern Tamaulipas (Ciudad Victoria; Miquihuana)^a and Territory of Tepic (Tepic;^a Santiago^a) southward through States of Hidalgo (Irolo;^a Tula), Vera Cruz (Orizaba, etc.), Puebla (Chalchicomula),^b Mexico (Ajusco; Amecameca; Tlalpam), Jalisco (Mascota), etc., to Oaxaca.

(?) *Lanius carolinensis* (not of Wilson) SWAINSON, Philos. Mag., n. s., i, 1827, 368 (table-land of Mexico); Isis, 1834, 784.—LICHTENSTEIN, Preis-Verz. Mex. Vög., 1830, 2; Journ. für Orn., 1863, 58 (reprint).

(?) *Lanius ludovicianus* (not of Linnæus) BONAPARTE, Proc. Zool. Soc. Lond., 1837, 112 (Mexico).

L[anius] mexicanus BREHM, Journ. für Orn., ii, Mar., 1854, 145, 148 (Mexico).—CABANIS, Mus. Hein., i, 1850, 74, part (Mexico).

(?) *Lanius mexicanus* SCLATER, Proc. Zool. Soc. Lond., 1859, 375 (Oaxaca; Feb., Mar.); 1864, 173 (crit.); Cat. Am. Birds, 1862, 46.—DUGÈS, La Natureza, i, 1869, 141 (Guanajuato).

Lanius excubitoroides (not *L. excubitorides* Swainson) SCLATER, Proc. Zool. Soc. Lond., 1864, 173 (City of Mexico).

[*Lanius*] *excubitoroides* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 13, part.

Collurio excubitoroides BAIRD, Review Am. Birds, 1866, 445, part.—SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 548, part, at least (plateau and temperate regions, Vera Cruz).

(?) *Lanius ludovicianus excubitorides* Cox, Auk, xii, 1895, 398 (foot of Mount Orizaba, Vera Cruz, summer).

LANIUS LUDOVICIANUS GAMBELI Ridgway.

CALIFORNIA SHRIKE

Most like *L. l. migrans* in coloration, and sometimes not distinguishable as to coloration of upper parts; but averaging slightly darker and duller gray above, with the upper tail-coverts usually abruptly white or much paler gray, as in *L. l. excubitorides*; under

^a Six specimens.

Specimens from the Territory of Tepic and State of Jalisco have larger bills than those from more eastern localities, average measurements of the two series being as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Six adult males from eastern and central Mexico.....	103	101.5	14.3	27	16.5
Two adult males from Territory of Tepic.....	96.5	96.5	16.7	27.5	16
FEMALES.					
Five adult females from eastern and central Mexico	98.2	98.4	13.6	26.7	16.4
One adult female from State of Jalisco.....	100	99	14.5	26	16

I am unable to discern any difference in coloration.

^b Breeding specimens examined from these localities.

parts, however, usually either browner than in other forms or with more or less distinct transverse bars or vermiculations of pale gray or brownish gray on chest and sides of breast.

Adult male.—Length (skins), 202–218 (210.4); wing, 94–99 (98); tail, 93–104 (97.8); exposed culmen, 15–16 (15.2); tarsus, 26.5–28 (27.6); middle toe, 16–17 (16.9).^a

Adult female.—Length (skins), 202–205 (203); wing, 95–97 (96.4); tail, 93–98 (95.6); exposed culmen, 14.5–15 (14.8); tarsus, 27–28.5 (27.6); middle toe, 17–17.5 (17.3).^b

Coast and interior valleys of northern Lower California, California, Oregon, Washington, and southern British Columbia; south in winter to Cape San Lucas, and through western Mexico as far as the State of Morelos (Cuernavaca, January 10).^c

Lanius elegans (not of Swainson) GAMBEL, Proc. Ac. Nat. Sci. Phila., i, 1843, 261 (California).

Lanius excubitorides (not of Swainson) SCLATER, Proc. Zool. Soc. Lond., 1857, 126 (San José, California).

Lanius excubitoroides HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, no. 2, 1859, 55 (California).—RIDGWAY, Proc. U. S. Nat. Mus., i, 1879, 391 (Murphys, Calaveras Co., California).

Collyrio excubitorides BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 327, part (Presidio, Petaluma, Santa Clara, San José, Tulare Valley, and Fort Tejon, California); Cat. N. Am. Birds, 1859, no. 238, part.—(?) XANTUS, Proc. Ac. Nat. Sci. Phila., 1859, 191 (Fort Tejon).—COOPER, Proc. Cal. Acad. Sci., 1870, 75.

Collurio excubitoroides BAIRD, Review Am. Birds, Aug., 1866, 445, part (San Francisco, etc., California).—COOPER, Orn. Cal., 1870, 138, part.

[*Collurio ludovicianus*] Var. *excubitoroides* COUES, Key N. Am. Birds, 1872, 125, part.

Collurio ludovicianus . . . *excubitoroides* COUES, Check List, 1873, no. 135a, part—

Collurio ludovicianus, var. *excubitoroides* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 421, part.

Collurio ludovicianus (*excubitoroides*?) RIDGWAY, Bull. Essex Inst., vi, 1874, 171 (Sacramento, California, breeding).

Collurio ludovicianus . . . *β. excubitoroides* RIDGWAY, Orn. 40th Parallel, 1877, 453, part (Sacramento, California).

Collurio ludovicianus var. *excubitoroides* . . . *b. excubitoroides* COUES, Birds N. W., 1874, 102, part.

[*Lanius ludovicianus excubitorides*] *b. excubitoroides* COUES, Birds Col. Val., 1878, 562, part.

Lanius ludovicianus excubitorides COUES, Birds Col. Val., 1878, 561, part; Check List, 2d ed. 1882, no. 188, part.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 149a, part.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 625a, part.—(?) EVERMANN, Auk, iii, 1886, 184 (Ventura Co., California).—(?) LAWRENCE (R. H.), Auk, ix, 1892, 46 (Grays Harbor, Washington).—MERRIAM (Florence A.), Auk, xiii, 1896, 121 (Twin Oaks, San Diego Co., California, breeding).

^a Ten specimens.

^b Five specimens.

^c Specimen in Biological Survey collection, which also contains two from Alamos Sonora (December 29 and January 27).

- Collurio ludovicianus*, *β. excubitorides* RIDGWAY, Proc. U. S. Nat. Mus., i, 1879, 411 (Stockton, etc., California).
- L[anius] ludovicianus gambeli* RIDGWAY, Man. N. Am. Birds, 1887, 467 (California; U. S. Nat. Mus.).
- Lanius ludovicianus gambeli* RIDGWAY, Man. N. Am. Birds, 1887, 592; 2d ed., 1896, 614.—CHAPMAN, Auk, v, 1888, 399.—BREWSTER, Auk, x, 1893, 237 (Chilliwack, British Columbia; crit.); Bull. Mus. Comp. Zool., xli, 1902, 172 (Cape St. Lucas district, winter).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 2d ed., 1895, no. 622b.—ANTHONY, Auk, xii, 1895, 142 (San Fernando, Lower California).—GRINNELL (J.), Pub. ii, Pasadena Acad. Sci., 1898, 43 (Los Angeles Co., California, resident).—BROOKS, Auk, xvii, 1900, 107 (Chilliwack, British Columbia).—ATKINSON (W. L.), Condor, iii, 1901, 9 (Santa Clara Co., California; nesting habits).
- L[anius] ludovicianus gambeli* BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 393.
- (?) *Lanius ludovicianus* (not of Linnæus) ORNITHOLOGICAL COMMITTEE, Journ. Ac. Nat. Sci. Phila., vii, 1837, 193 (Columbia R.).—TOWNSEND (J. K.), Journ. Ac. Nat. Sci. Phila., viii, 1839, 152 (Columbia R.).
- Lanius ludovicianus* GAMBEL, Journ. Ac. Nat. Sci. Phila., n. s., i, 1847, 44, part (California); Proc. Ac. Nat. Sci. Phila., iii, 1847, 200 (California).—TOWNSEND (C. H.), Proc. U. S. Nat. Mus., x, 1887, 222 (Red Bluff and Mount Lassen, n. California).
- Collurio ludovicianus* RIDGWAY, Bull. Nutt. Orn. Club, iii, 1878, 66 (centr. California); Proc. U. S. Nat. Mus., i, 1879, 411 (Marysville and Summit Meadows, California).

LANIUS LUDOVICIANUS ANTHONYI Mearns.

ISLAND SHRIKE.

Darkest of all the forms of this species. Similar in coloration to *L. l. ludovicianus*, but gray of upper parts still darker (nearly slate color), especially on pileum, and more uniform, the scapulars almost wholly deep gray; white spot at base of primaries much smaller; under parts of body much more strongly tinged with gray, becoming distinctly gray (about no. 6) on sides and flanks; lateral rectrices with much less of white, this extending only about 22 mm. from the tip on inner web of exterior rectrix.

Adult female.—Length (skin), 206; wing, 95; tail, 95; exposed culmen, 15; tarsus, 28; middle toe, 17.^a

Santa Cruz Island (Santa Barbara group), southern California.

[*Collurio ludovicianus*] *ludovicianus* (not *Lanius ludovicianus* Linnæus) HENSHAW, Rep. Wheeler's Surv., 1876, App. Hs, 237 (Santa Cruz I., California; crit.^b).

Lanius ludovicianus excubitorides (not *Lanius excubitorides* Swainson) BLAKE, Auk, jv, 1887, 330 (Santa Cruz I.).

Lanius ludovicianus anthonyi MEARNS, Auk, xv, July, 1898, 261 (Santa Cruz I., Santa Barbara group, California; coll. U. S. Nat. Mus.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 122 (Check List no. 622c).—OBERHOLSER, Proc. U. S. Nat. Mus., xxii, 1900, 233 (Santa Cruz I.; crit.).

^aOne specimen, the type. (No. 163074, coll. U. S. Nat. Mus., Santa Cruz Island, California, June 5, 1897; R. H. Beck.)

^bIn text, under *C. l.* var. *excubitorides*.

L[anius] l[udovicianus] anthonyi BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 393.

Lanius anthonyi GRINNELL (J.), Pacific Coast Avifauna, no. 3, June 25, 1902, 62.

LANIUS LUDOVICIANUS MEARNSI, new subspecies.^a

SAN CLEMENTE SHRIKE.

Similar to *L. l. anthonyi*, but upper tail-coverts abruptly white, more white on scapulars, white spot at base of primaries larger, and under parts of body much less strongly tinged with gray. In white upper tail-coverts, greater extent of white on posterior scapulars and at base of primaries, similar to *L. l. gambeli*, but the gray of upper parts very much darker (quite as dark as in *L. l. anthonyi*), and with much less of white at base of primaries and on lateral rectrices.

Adult female.—Length (skins), 200–208 (204); wing, 93–96 (94.3); tail, 88–100 (94.7); exposed culmen, 15–16 (15.7); tarsus, 26–27 (26.7); middle toe, 16–17 (16.3).^b

San Clemente Island, Santa Barbara group, southern California; Santa Margarita Island, Lower California (Pacific side).

(?) *Lanius ludovicianus excubitorides* (not *Lanius excubitorides* Swainson?) BRYANT (W. E.), Bull. Calif. Acad. Sci., ii, 1887, 306 (Guadalupe I., Lower California, 2 specs., Dec.).

Lanius ludovicianus gambeli (not of Ridgway) GRINNELL, Rep. Birds Santa Barbara Islands, etc., 1897, 19 (San Clemente I.; habits; descr. nest and eggs); (?) Auk, xv, 1898, 235 (Santa Catalina I.).

Family CORVIDÆ.

THE CROWS AND JAYS.

Rather large to very large^c "conirostral" or "cultrirostral" ten-primaried acutiplantar Oscines without subterminal notch to maxillary tomium; the planta tarsi separated, more or less distinctly, from the acrotarsium by a narrow interval which is either smooth or occupied by small roundish or ovate scales, the outer plantar lamina, with the lower portion (sometimes one-third or more), divided into transverse scutella; nostrils covered, more or less, by a tuft of antrorse plumules, or, if exposed, circular and without distinct overhanging membrane, or else^d longitudinal, with prominent superior operculum; outermost (tenth) primary shorter than secondaries, not more (usually less) than half as long as longest primary.

Bill variable in shape, but always more or less elongate, compressed conical, with culmen more or less strongly curved terminally,^e never

^aType, no. 134781, coll. U. S. Nat. Mus., adult female, San Clemente Island, Santa Barbara group, southern California, Aug. 27, 1894; Dr. Edgar A. Mearns, U. S. A.

^bThree specimens; two from San Clemente Island, one from Santa Margarita Islands, Lower California. The latter and one of the former not quite adult, retaining traces of the juvenile plumage.

^cThe ravens are the largest of Passerine birds.

^dIn the genus *Cyanocephalus*.

^eExcept in *Cyanocephalus*, which also has the terminal portion of the culmen flattened.

distinctly (usually not at all) notched, and never distinctly angulated (deflexed) basally. Nostril usually roundish and nonoperculate,^a usually completely hidden by an antrorse latero-frontal tuft.^b Rictal bristles distinct. Wing variable as to relative length; long and pointed in subfamily Corvinæ, short and rounded (often much shorter than tail) in subfamily Garrulinæ; outermost primary (tenth) short, usually about half as long as ninth, or a little more; eighth to fifth primaries longest. Tail very variable as to form and relative length, but never emarginate nor forked; usually more or less rounded, often graduated (sometimes excessively so). Tarsus longer than middle toe with claw, variable as to relative thickness; acrotarsium distinctly scutellate;^c lateral toes much shorter than middle toe (the inner usually longer than the outer); middle toe with its basal phalanx united for about half its length to both lateral toes; hallux, with claw, shorter than middle toe, with claw, not longer than lateral toes (often shorter).

The preceding diagnosis is not entirely satisfactory and can only be regarded as a provisional one, since authorities are by no means unanimous as to the limits of the Corvidæ. This uncertainty as to the proper limits of the family has necessitated the framing of a diagnosis specially applicable to the American forms. Several of the Old World types which have been referred to the Corvidæ are more or less aberrant, and some of them certainly do not belong here. Among the latter may be specially mentioned the Australian genus *Strepera*, which, with the genus *Cracticus*, has by some authors been referred to the Laniidæ, though a more consistent view of their relationship would entitle them to the rank of a family, Streperidæ.^d

Besides the Streperidæ and Laniidæ, the nearest relations of the Corvidæ seem to be the Paradiseidæ, which, according to Dr. Sharpe,^e differ chiefly in the abnormal character of the feet, which have the outer toe but little shorter than the middle one, and the hallux, including its claw, equal to or longer than the middle toe, with its claw.

Some of the smaller Corvidæ of the subfamily Garrulinæ present a remarkably close general resemblance to the Paridæ, notwithstanding the great difference in size. Nevertheless, the resemblance seems to be a purely superficial one, since the internal structure does not bear

^a Longitudinal and operculate only in genus *Cyanocephalus*.

^b Wholly exposed, the tufts being absent, in genera *Cyanocephalus*, *Calocitta*, and *Psilorhinus* among American genera.

^c Booted in the Palearctic genus *Fregilus*, which, together with *Pyrhacorax*, is otherwise aberrant, the two constituting the subfamily Fregilinæ of some authors.

^d See Parker, Trans. Zool. Soc. Lond., ix, 1875, 337, and Newton, Dictionary of Birds, pt. i, 1893, 116.

According to Parker the true Corvidæ are ægithognathous, while *Gymnorhina* is compoundly ægithognathous or desmognathous by "ankylosis of the inner edge of the maxillaries with a highly ossified alinasal wall and nasal septum."

^e Cat. Birds Brit. Mus., iii, 1877, 4.

out the close relationship suggested by the external appearance. Even the external characters, when closely examined, show many points of difference. Thus, the divisions of the tarsal envelope are essentially different, the Paridæ lacking the longitudinal space between the anterior and outer postero-lateral plates; the basal phalanx of the middle toe is united in the Paridæ, almost if not quite to the whole length of the basal phalanx of the outer toe, but only for about half this length in the Corvidæ; the feathers of the antrorse nasal tufts are different in the two groups, being bristly throughout in the Corvidæ, "with lateral branches reaching to the very tip," while in the Paridæ they are "broader, with the shaft projecting considerably beyond the basal portion, or the lateral branches are confined to the basal portion and extended forward" (Baird).

The family Corvidæ is so nearly cosmopolitan that only New Zealand and portions of Polynesia are without representatives. The group is most developed, however, in the northern hemisphere. America possesses nearly half the genera and species of undoubted^a Corvidæ enumerated by Dr. Sharpe in his catalogue of the Corvidæ in the British Museum.

A somewhat singular fact in connection with the distribution of this family on the Western Hemisphere consists in the circumstance that while members of the subfamily Garrulinæ extend from the northern limit of forests almost to the southern extremity of the temperate districts of South America, no part of the continental portions of tropical America being without its representatives, the subfamily Corvinæ reaches its southern limit in the Greater Antilles and on the highlands of Honduras, no peculiar species occurring south of Central Mexico or Jamaica, the Greater Antilles lacking any representation of the Garrulinæ and the Lesser Antilles being without a single member of either group.

KEY TO THE GENERA OF CORVIDÆ.

- a. Tail much shorter than wing, the latter long and pointed, with primaries exceeding longest secondaries by more than length of tarsus, the sixth, seventh, and eighth longest. (Subfamily Corvinæ.)^b

^a The genera *Strepera*, *Struthidea*, *Picathartes*, *Glaucopsis*, *Heteralocha*, *Creadion*, *Pulculia*, *Graculus*, *Pyrhacorax*, *Corcorax*, and *Podoces* are excluded from the above enumeration as being more or less doubtfully members of the family.

^b Dr. R. Bowdler Sharpe (Cat. Birds Brit. Mus., iii, 1877, 4) gives the subfamily Corvinæ wider limits. He includes with the Corvinæ, as here defined, the Garrulinæ, separating only the Fregilinæ. The latter are restricted in their range to the Palearctic Region and Australia, and comprises the genera *Graculus* Brisson (= *Fregulus* Cuvier), *Pyrhacorax* Vieillot, *Corcorax* Lesson, and *Podoces* Fischer. As already stated on page 253, the limits of the family are as yet by no means satisfactorily defined and it may here be stated that the subfamily divisions are equally unsettled. So far as the American forms are concerned, however, the groups Corvinæ and Garrulinæ are sufficiently distinct, the only question being as to whether they should rank as subfamilies or groups of inferior grade.

- b. Nostrils roundish, non-operculate, more or less covered by antrorse latero-frontal tufts; bill more or less compressed, with base of culmen narrow and extended but little behind the frontal antiae; color of plumage not blue; wing more than 175 mm.
- c. Larger (wing not less than 230 mm., usually much more); bill compressed (much higher than broad), the culmen strongly curved; nasal tufts more than one-third as long as maxilla; plumage (in American species) wholly black *Corvus* (p. 256)
- cc. Smaller (wing much less than 230 mm.); bill nearly cylindrical (slightly higher than broad), the culmen nearly straight (slightly curved terminally); nasal tufts less than one third as long as maxilla; plumage mainly gray, or brown with white spots or streaks, the wings and tail black and white *Nucifraga* (p. 280)
- bb. Nostrils longitudinal, distinctly operculate, wholly exposed (no antrorse latero-frontal tufts); bill depressed, with basal portion of culmen broad and flattened, extending considerably behind the frontal antiae;^a color of plumage blue; wing less than 175 mm. *Cyanocephalus* (p. 283)
- aa. Tail nearly if not quite as long as wing, often longer, sometimes much longer, the latter comparatively short and rounded, with primaries exceeding longest secondaries by much less than length of tarsus, the fifth, sixth, and seventh longest. (Subfamily Garrulinae.)
- b. Tail much longer than wing, graduated for half its length, or more.
- c. Nostrils covered by antrorse nasal tufts; orbits partly naked; no crest; tenth primary falcate; wings and tail metallic bluish and greenish, the latter without white tips; scapulars white. *Pica* (p. 286)
- cc. Nostrils wholly exposed; orbits entirely feathered; a conspicuous recurved crest; tenth primary normal; wings and tail plain blue or grayish blue, the latter with broad white tips; scapulars bluish, like back. *Calocitta* (p. 292)
- bb. Tail not much, if any, longer than wing, not graduated for more than about one-third its length (usually much less, sometime nearly even).
- c. Nostrils completely exposed, with considerable of a naked space behind them *Psittorhinus* (p. 298)
- cc. Nostrils more or less hidden by antrorse nasal tufts.
- d. Under parts of body either white, yellow, green, or purplish, abruptly defined against black or dark brown of chest and throat.
- e. Larger (wing not less than 139.5 mm.); under parts of body white or pale yellow (purplish in some South American species); back, etc., blue or purplish *Cyanocorax* (p. 303)
- ee. Smaller (wing less than 139 mm.); under parts deep yellow or green; back, etc., green (sometimes tinged or washed with blue).
..... *Xanthoura* (p. 305)
- dd. Under parts of body neither white, yellow, green, nor purplish.
- e. Under parts uniform black or with at least the anterior half abruptly black; head and neck entirely black *Cissilophus* (p. 312)
- ee. Under parts not uniform black; if black anteriorly, the black merging gradually into blue of posterior portions and the head conspicuously crested.
- f. Plumage partly blue; longest primaries exceeding secondaries by less than length of commissure.
- g. Without any distinct crest.
- h. Sides of head, including nasal plumes, black, conspicuously and abruptly contrasted with the color (blue or lavender) of crown or throat, or both *Cyanolyca* (p. 318)

^a The form of the bill in this genus is very similar to that of *Sturnus* and *Sturnella*, of the families Sturnidae and Icteridae, respectively.

hh. Sides of head and nasal plumes not black, nor conspicuously (if any) different from color of crown or throat.

Aphelocoma (p. 323)

gg. Conspicuously crested (crest pointed) Cyanocitta (p. 345)

ff. Plumage without any blue (mostly grayish or brownish); longest primaries exceeding secondaries by more than length of commissure.

Perisoreus (p. 364)

Genus CORVUS Linnæus.

Corvus LINNÆUS, Syst. Nat., ed. 10, i, 1758, 105. (Type, by elimination, *C. corax* Linnæus.)

Lycus (not of Fabricius, 1787) BOIE, Isis, 1822, 55. (Type, *Corvus monedula* Linnæus.)

Monedula (not of Linnæus, 1762, nor Coquebert, 1798) BREHM, Isis, 1828, 1273. (Type, *Corvus monedula* Linnæus.)

Corone KAUP, Naturl. Syst., 1829, 90. (Type, *Corvus corone* Linnæus.)

Coloeus KAUP, Naturl. Syst., 1829, 114 (Type, *Corvus monedula* Linnæus.)

Colæus SHARPE, Cat. Birds Brit. Mus., iii, 1877, 25.

(?) *Gazzola* BONAPARTE, Consp. Av., i, 1850, 75; Compt. Rend., xxxvii, 1854, 828. (Type, *G. typica* Bonaparte.^a)

Amblycorax BONAPARTE, Compt. Rend., xxxvii, 1853, 829. (Type, *Corvus violaceus* BONAPARTE.)

Pterocorax KAUP, Journ. für Orn., ii, no. 12, Suppl. Nov., 1854, p. lv. (Type, *Corvus scapularis* Daudin.)

Corax KAUP, Journ. für Orn., ii, no. 12, Suppl. Nov., 1854, p. lv. (Type, *Corvus corax* Linnæus?).

Anomalocorax FITZINGER, Sitz. Ak. Wien, xlv, Abth. 1, 1863, 209. (Type, *Corvus splendens* Vieillot.)

Trypanocorax SUNDEVALL, Meth. Av. Tent., 1872, 43 (ex Bonaparte, Ann. Sci. Nat., i, 1854, 133=nomen nudum). (Type, *Corvus frugilegus* Linnæus.)

(?) *Heterocorax* SHARPE, Cat. Birds Brit. Mus., iii, 1877, 11. (Type, *Corvus capensis* Lichtenstein.^a)

(?) *Rhinocorax* SHARPE, Cat. Birds Brit. Mus., iii, 1877, 45. (Type, *Corvus affinis* Rüppell.^a)

Microcorax SHARPE, Cat. Birds Brit. Mus., iii, 1877, 48. (Type, *Corvus jamaicensis* Gmelin.)

(?) *Macrocorax* SHARPE, Cat. Birds Brit. Mus., iii, 1877, 51. (Type, *Corvus fuscipectus* Gray.^a)

Large Corvinæ, with the wing more (usually much more) than 230 mm. long; nasal plumes covering at least the basal third of the maxilla; wings long and pointed, reaching nearly or quite to tip of tail, the eighth or seventh primary longest, the four outermost with inner web sinuated; tail rounded or slightly graduated.

Coloration (of American species).—Entirely dark colored, without any white except, sometimes, on concealed basal portion of feathers of the neck, etc.; all the species except one (*C. jamaicensis*) uniform black, more or less glossy, or glossy steel-blue and violet (*C. mexicanus*).

Nidification.—Nest of twigs, strips of bark, etc., lined with finer materials, open above, placed in trees (more rarely on cliffs or build-

^a The type species of these supposed genera I have not been able to examine.

ings). Eggs 3-8, light bluish or greenish (more rarely whitish) more or less thickly speckled with brown or olive.

Range.—Nearly cosmopolitan (absent only in Lesser Antilles, Central and South America, Madagascar, New Zealand, and part of Polynesia).

Three of the five West Indian species (*C. jamaicensis*, *C. nasicus*, and *C. leucognaphalus*) seem very distinct in their exposed nostrils, semierect nasal plumes, large naked postocular space, and more compressed bill, but the other two (*C. solitarius* and *C. minutus*) are intermediate in these characters between the above-mentioned forms and the continental type, or exhibit a combination of their characters. Consequently, I am obliged to consider the generic name *Microcorax*, Sharpe, a synonym of *Corvus*.

KEY TO THE SPECIES AND SUBSPECIES OF CORVUS.

- a. Feathers of throat elongated, lanceolate, distinctly outlined. (Ravens.)
- b. Feathers of neck, upper back, and breast gray basally. (*Corvus corax*.)
- c. Eighth (third from outside) primary usually longer than sixth, sometimes longer than seventh.

- d. Larger, with stouter bill and relatively shorter and thicker tarsi (adult male with exposed culmen averaging 81.5, depth of bill at nostrils 29, tarsus 68). (Northern North America, from Arctic lands to New Brunswick, higher Alleghenies, British Columbia, etc.)

Corvus corax principalis (p. 259)

- dd. Smaller, with more slender bill and relatively longer and thinner tarsi (adult male with exposed culmen averaging 74.4, or less, depth of bill at nostril 25.6, or less, tarsus more than 68).

- e. Larger, with relatively larger bill (adult male averaging wing 430.8, tail 236.7, exposed culmen 74.4, depth of bill at nostrils 25.6, tarsus 69.8). (Western United States and southward through Mexico to highlands of northern Honduras.).....*Corvus corax sinuatus* (p. 262)

- ee. Smaller, with relatively smaller bill (adult male averaging wing 402.6, tail 221, exposed culmen 68.2, depth of bill at nostrils 24.2, tarsus 68.4). (Revillagigedo Islands, western Mexico, north to San Clemente and Santa Catalina islands, California.)...*Corvus corax clarionensis* (p. 264)

- cc. Eighth primary (third from outside) usually shorter than sixth, never (?) longer than seventh. (Commander Islands, Kamchatka.)

Corvus corax behringianus (extralimital) a.

- bb. Feathers of neck, upper back, and breast pure white basally. (Southwestern United States and Mexican plateau.).....*Corvus cryptoleucus* (p. 265)

- aa. Feathers of throat normal (short and blended). (Crows.)

- b. Nostrils completely hidden by antrorse nasal plumes, the latter directed forward in line with longitudinal axis of maxilla.

a *Corvus corax behringianus* Dybowski, Bull. Soc. Zool. France, 1883, 263 (Bering Island, Commander group, Kamchatka).—*Corvus grebnitzkii* Stejneger, Proc. Biol. Soc. Wash., ii, 1885 (pub. Apr. 10, 1884), 97 (Bering I.; coll. U. S. Nat. Mus.). The characters of this form are given in view of the possibility that it may occur as a straggler in some of the westernmost Aleutian Islands.

- c. Bill less compressed, higher terminally, where more abruptly decurved.
- d. Larger (wing 264.5 or more); plumage moderately lustrous, essentially black.
- e. Larger (wing averaging more than 279.5, exposed culmen averaging 47 or more, tarsus averaging 51 or more); under parts faintly glossed with violet. (*Corvus americanus*.)
- f. Larger (exposed culmen of adult male averaging more than 51, tarsus averaging more than 60.5).
- g. Larger, with relatively smaller bill and feet; wing of adult male averaging 321, tail 181, exposed culmen 51.5, tarsus 61.5. (Eastern North America, except Florida and extreme northern districts.)
- Corvus americanus americanus* (p. 267)
- gg. Smaller, with relatively larger bill and feet; wing of adult male averaging 304, tail 174, exposed culmen 51.8, tarsus 62.5. (Peninsula of Florida.) *Corvus americanus pascuus* (p. 269)
- ff. Smaller (exposed culmen of adult male averaging less than 48, tarsus averaging less than 58).
- g. Larger, with relatively larger feet; wing of adult male averaging 302.5, tail 170.5, exposed culmen 48, tarsus 57.5, middle toe 36. (Western United States.) *Corvus americanus hesperis* (p. 270)
- gg. Smaller, with relatively smaller feet; wing of adult male averaging 283.5, tail 137.5, exposed culmen 46.5, tarsus 51, middle toe 33. (Northwest coast, from Puget Sound to Kadiak Island and Alaska peninsula.) *Corvus americanus caurinus* (p. 272)
- ee. Smaller (wing averaging less than 279.5, exposed culmen averaging less than 45.5, tarsus averaging less than 48); under parts rather distinctly glossed with green or greenish blue. (Atlantic and Gulf coasts of United States, from Massachusetts to Texas.)
- Corvus ossifragus* (p. 273)
- dd. Smaller (wing less than 260); plumage highly lustrous, dark steel blue with violet on pileum, wings, etc. (Mexico.)
- Corvus mexicanus* (p. 275)
- cc. Bill more compressed, less deep terminally, where culmen less strongly decurved.
- d. Larger (wing 261, tail 149, exposed culmen 51, tarsus 51.5); bill narrower, less high at base; nasal plumes reaching far in advance of nostrils. (Haiti.) *Corvus palmarum* (p. 276)
- dd. Smaller (wing 233, tail 134.5, exposed culmen 43.5, tarsus 48.5); bill more conical, higher at base; nasal plumes reaching but little in advance of nostril. (Cuba.) *Corvus minutus* (p. 276)
- bb. Nostrils exposed, the nasal plumes directed obliquely upward.
- c. Smaller (wing less than 254); back and under parts sooty slate. (Jamaica.)
- Corvus jamaicensis* (p. 277)
- cc. Larger (wing 279.5 or more); back and under parts glossy black.
- d. Feathers of neck and body gray basally. (Cuba.) *Corvus nasicus* (p. 278)
- dd. Feathers of neck and body pure white basally. (*Corvus leucognaphalus*.)
- e. Larger, with smaller feet (wing averaging more than 305, tarsus averaging 53, middle toe averaging 40); plumage less glossy. (Porto Rico.)
- Corvus leucognaphalus leucognaphalus* (p. 278)
- ee. Smaller, with larger feet (wing averaging less than 305, tarsus averaging 57, middle toe averaging 44); plumage more glossy. (Haiti.)
- Corvus leucognaphalus erythrophthalmus* (p. 279)

CORVUS CORAX PRINCIPALIS Ridgway.

NORTHERN RAVEN.

Adults (sexes alike).—Entire plumage deep glossy black; the wing-coverts, secondaries, innermost primaries and tail glossed with violet (the gloss on wings more purplish, sometimes inclining to bronze on secondaries); primary-coverts and longer and outermost primaries glossed with bluish or greenish; under parts glossed with blue or greenish blue, becoming more violaceous on lanceolate feathers of throat; shafts of primaries becoming whitish basally; feathers of neck, etc., light gray basally; bill, legs, and feet black; iris deep brown.

Adult male.—Length (skins), 622–675.5 (648.5); wing, 419.5–464 (438); tail, 235–259.5 (247); exposed culmen, 76.5–92 (81.5); depth of bill at nostril, 26.5–31.5 (28.5); tarsus, 62–71 (68); middle toe, 43–54 (47.5); graduation of tail, 48–73.5 (54.5).^a

Adult female.—Length (skins), 572–667 (624); wing, 413–440.5 (426); tail, 229–246.5 (242); exposed culmen, 68–81.5 (76.5); depth of bill at nostrils, 24–28 (26.5); tarsus, 63–73 (61.5); middle toe, 43–51 (46.5); graduation of tail, 44.5–58.5 (50).^b

Arctic and Boreal Provinces of North America; south to eastern British Provinces, portions of New England, and Atlantic coast of

^a Sixteen specimens.

^b Fourteen specimens.

Eastern and western specimens compare in average measurements as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at nos- trils.	Tarsus.	Middle toe.	Gradua- tion of tail.
MALES.							
Ten adult males from Greenland, Ungava, etc	432.5	244.5	81	28.5	67.5	46.5	57
Six adult males from Alaska	446.5	250	81.5	29	69	48.5	53.5
Three adult males from British Columbia	437	252	79.5	28	69	50.5	58.5
One adult male from mountains of Pennsylvania	432	241.5	79	28	73.5	47.5	58
FEMALES.							
Six adult females from Greenland, Ungava, etc	425	246.5	76.5	26.5	66	46	47.5
Eight adult females from Alaska	426	240	75.5	26.7	66.5	45.5	51.5
Two adult females from British Columbia	423	241.5	73.5	26	65	47	71.5
Two adult females from Michigan and mountains of Pennsylvania	409.5	241.5	74	25	62.5	41	43

The specimens from British Columbia, Michigan, and Pennsylvania are not typical, but incline more or less toward *C. c. sinuatus*. Their measurements are not included in the extremes and averages given in the diagnosis, which are restricted to measurements of specimens from Greenland, Ungava, Alaska, and other extreme northern localities.

United States, higher Alleghenies,^a region of the Great Lakes. western and northern Washington, etc.

- Corvus corax* (not of Linnaeus) WILSON, Am. Orn., ix, 1825, 136, pl. 75, fig. 3.—DOUGHTY, Cab. Nat. Hist., i, 1830, 270, pl. 24.—SWAINSON and RICHARDSON, Fauna Bor.-Am., ii, 1831, 290.—NUTTALL, Man. Orn. U. S. and Can., i, 1832, 202.—AUDUBON, Orn. Biog., ii, 1834, 476, pl. 101; Synopsis, 1839, 150; Birds Am., oct. ed., iv, 1843, 78, pl. 224.—WILLIS, Ann. Rep. Smithsonian Inst. for 1858 (1859), 283 (Nova Scotia; resid.).—REINHARDT, Ibis, 1861, 7 (Greenland).—CASSIN, Proc. Ac. Nat. Sci. Phila., 1862, 313 (Kayne I., Bering Straits).—SCHLEGEL, Mus. Pays-Bas, Coraces, 1867, 11, part (Greenland; Labrador).—HARTING, Proc. Zool. Soc. Lond., 1871, 112 (Beechey I., Barrow Straits).—FINSCH, Abh. Nat. Ver. Brem., iii, 1872, 40 (Alaska); 1874, 104 (s. w. Greenland); Zweite Deutsche Nordpolfahrt, ii, 1874, 185 (e. Greenland; crit.).—COUES, Check List, 1873, no. 226, part; 2d ed. 1882, no. 338, part; Birds N. W., 1874, 204, part; in Elliott's Affairs in Alaska, 1875, 178 (Pribilof I.; introduced from Unalaska).—NEWTON, Man. N. H. Greenland, 1875, 99.—SHARPE, Cat. Birds Brit. Mus., iii, 1877, 14, part (Vancouver I.; Fort Simpson; 49th Parallel?).—FEILDING, Ibis, 1877, 405 (Smiths Sound, lat. 81° 44').—ADAMS, Ibis, 1878, 426 (St. Michael, Alaska).—KUMLIEN, Bull. U. S. Nat. Mus., no. 15, 1879, 78 (Cumberland Sound, etc.; habits).—SCOTT, Bull. Nutt. Orn. Club, iv, 1879, 223 (Long Beach, New Jersey).—MERRILL (H.), Bull. Nutt. Orn. Club, vi, 1881, 249 (coast Maine, resid.).—BATCHELDER, Bull. Nutt. Orn. Club, vii, 1882, 149 (Grand Falls, New Brunswick; Houlton, Maine).—MERRIAM, Bull. Nutt. Orn. Club, vii, 1882, 236 (bet. Godbout and Point de Monts, prov. Quebec, breeding).—ELLIOTT, Mon. Seal Islds., 1882, 128.
- [*Corvus*] *corax* BONAPARTE, Journ. Ac. Nat. Sci. Phila., iii, 1824, 359; Consp. Av., i, 1850, 387, part.—COUES, Key N. Am. Birds, 2d ed., 1884, 416, part.
- [*Corvus*] *corax* (var.?) COUES, Key N. Am. Birds, 1872, 162, part.
- Corvus corax* var. *littoralis* (not *Corvus littoralis* Brehm, 1831) HOLBOELL, in Kroyer's Tidsskrift, iv, 1843, 390 (Greenland; Labrador).
- Corvus lugubris* AGASSIZ, Proc. Bost. Soc. N. H., i, 1846, 188 (= nomen nudum).
- Corvus carnivorus* "Bartram"^b BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 560, part (coast New Jersey); Cat. N. Am. Birds, 1859, no. 423, part.—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 210, part (Vancouver I.; Washington?).—COUES, Proc. Ac. Nat. Sci. Phila., 1861, 225 (Henley Harbor, etc., Labrador; habits).—LORD, Proc. Roy. Art. Inst. Woolwich, iv, 1864, 12 (British Columbia).—LAWRENCE, Ann. Lyc. N. Y., viii, 1866, 289 (Long Island; coast New Jersey).—DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 285 (Nulato, Alaska; habits, etc.).—DALL, Proc. Cal. Acad. Sci., v, 1873, 27 (Unalaska; Shumagin), v, 1874, 274 (throughout Aleutians).

^aThe southern limits of this form are not satisfactorily known, material being lacking for determination of the question. The few eastern specimens which have been examined seemed to be decidedly nearer typical *C. c. principalis* than *C. c. sinuatus*. I have not been able to examine a specimen of the raven which breeds along the coast of New Jersey, Virginia, etc., nor an example from the mountains of North Carolina or Tennessee. References to these more southeastern localities are therefore placed in the synonymy of *C. c. principalis* provisionally only. The same uncertainty pertains to the status of the ravens which breed in southern Illinois, southern Indiana, and other portions of the Mississippi Valley. References to them are, tentatively, placed under *C. c. sinuatus*.

^b*Corvus carnivorus*, the raven, Bartram, Travels in Florida, 1791, 290 (Pennsylvania). Bartram was not a consistent binomialist, and the birds he named were rarely described so as to admit of positive identification. It is generally conceded, therefore, that his names can not properly have a place in systematic nomenclature.

Corvus carnivorus MAYNARD, Birds E. N. Am., 1881, 153 (Magdalen Islands, etc.).
Corvus corax var. *carnivorus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 233, part.—(?) NELSON, Bull. Essex Inst., viii, 1876, 25 (n. e. Illinois; rare winter visit.).

Corvus corax carnivorus RIDGWAY, Nom. N. Am. Birds, 1881, no. 280, part.—NELSON, Cruise "Corwin," 1881 (1883), 73 (Aleutian Islands, etc.).—MERRIAM, Bull. Nutt. Orn. Club, vi, 1881, 231 (Lewis Co., New York, resident).—(?) FOX, Bull. Nutt. Orn. Club, vi, 1882, 192 (Lookout Mt., Tennessee).—CHAMBERLAIN, Bull. Nat. Hist. Soc. N. B., i, 1882, 42 (New Brunswick).—BEAN, Proc. U. S. Nat. Mus., v, 1882, 158 (Sitka; Yakutat Bay; Eschscholtz Bay; Plover Bay, Siberia?).—BREWSTER, Pr. Bost. Soc. N. H., xxii, 1883, 378 (Gulf St. Lawrence; habits).—FINSCH, Journ. für Orn., 1883, 270 (Chilcat R., Alaska).—McLENNAN, Cruise "Corwin," 1884, 116 (Kowak R., Alaska).—TURNER, Proc. U. S. Nat. Mus., viii, 1885, 241 (Fort Chimo, Ungava); Auk, ii, 1885, 157 (Nearer Islands, Alaska).

[*Corvus corax*] *γ. carnivorus* DUBOIS, Rev. et Mag. de Zool., 1873, 5, part.

(?) *Corvus corax sinuatus* (not *Corvus sinuatus* Wagler) BREWSTER, Auk, iii, 1886, 106 (mountains w. North Carolina, above 3,000 ft.).—FOX, Auk, iii, 1886, 319 (Roane Co., e. Tennessee).—SETON, Auk, iii, 1886, 321 (w. Manitoba).—TURNER, Contr. Nat. Hist. Alaska, 1886, 167 (habits, etc.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 486, part.—NELSON, Nat. Hist. Coll. Alaska, 1887, 165 (habits, etc.).—TOWNSEND, Auk, iv, 1887, 12 (Kowak R., n. w. Alaska); Cruise "Corwin," 1885 (1887), 92 (Kotzebue Sound; Kowak R.).—(?) STONE, Auk, viii, 1891, 245 (Delaware Co., Pennsylvania, Dec.).—(?) McILWRAITH, Birds Ontario, 1892, 276.—(?) HATCH, Birds Minnesota, 1892, 266 (about Lake Superior and along Red R.).—NUTTING, Bull. Labr. N. H. Univ. Iowa, ii, no. 3, 1893, 273 (lower Saskatchewan).—ATKINSON, Biol. Rev. Ont., i, 1894, 99 (Port Arthur, n. shore Lake Superior, breeding).—(?) RHOADS, Auk, xvi, 1899, 311 (Clinton Co., w. Pennsylvania).

(?) *Corvus corax sinuatus* ? RHOADS, Proc. Ac. Nat. Sci. Phila., 1893, 46, 63 (int. British Columbia).

[*Corvus*] *corax principalis* RIDGWAY, Man. N. Am. Birds, 1887, 361 (St. Michael, Alaska; coll. U. S. Nat. Mus.).

Corvus corax principalis RIDGWAY, Man. N. Am. Birds, 1887, 592; 2d ed. 1896, 613.—BISHOP, Auk, vi, 1889, 147 (Magdalen Islands, breeding).—CHAMBERLAIN and HAGERUP, Auk, vi, 1889, 293 (s. Greenland; habits).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Suppl. to Check List, 1889, 11 (no. 486a); Check List, 2d ed., 1895, no. 486a.—WARREN, Birds Pennsylvania, 1890, 201 (mountain districts).—FANNIN, Check List Birds Brit. Col., 1891, 32.—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1891, 567 (localities in Manitoba; habits).—MACFARLANE, Proc. U. S. Nat. Mus., xiv, 1891, 439 (Anderson R., etc.).—STONE, Auk, xi, 1894, 137 (s. New Jersey, breeding); 1895, 505 (McCormick Bay, w. Greenland).—BENDIRE, Life Hist. N. Am. Birds, ii, 1895, 400, pl. iv, figs. 1, 2 (eggs).—WOODRUFF, Auk, xiii, 1896, 83 (Mendocia, n. e. Illinois, 1 spec., Oct.).—KNIGHT, Bull. Univ. Maine, no. 3, 1897, 84 (common resid. on coast, more rare in int.).—JOB, Auk, xv, 1898, 55 (islands Penobscot Bay, breeding).—GRINNELL (J.), Auk, xv, 1898, 128 (Sitka).—RIVES, Auk, xv, 1898, 135 (spruce reg. mts. West Virginia).—PORTER, Auk, xvii, 1900, 72 (Newfoundland).—BIGELOW, Auk, xix, 1902, 29 (Newfoundland, locally common).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 280, pl.

Corvus corax nobilis (not *Corvus nobilis* Gould) PALMER (W.), Proc. U. S. Nat. Mus., xiii, 1890, 262 (Canada Bay, Newfoundland; Black Bay; Straits of Canso).

CORVUS CORAX SINUATUS (Wagler).

MEXICAN RAVEN.

Similar to *C. c. principalis*, but averaging smaller, with relatively smaller and narrower bill and longer and more slender tarsus.

Adult male.—Length (skins), 618.1–694.3 (654.2); wing, 396.2–459.7 (430.8); tail, 218.4–254 (236.7); exposed culmen, 66–80 (74.4); depth of bill at nostrils, 23.4–27.9 (25.6); tarsus, 64.8–73.7 (69.8); middle toe, 39.4–58.4 (47.2); graduation of tail, 39.4–63.5 (48.5).^a

Adult female.—Length (skins), 592.7–656.2 (631.6); wing, 386.1–431.8 (408.9); tail, 208.3–251.5 (228.8); exposed culmen, 64.8–76.2 (69.8); depth of bill at nostrils, 22.9–27.4 (24.4); tarsus, 63.5–73.1 (66.8); middle toe, 40.1–47 (41.7); graduation of tail, 34.3–61 (48.5).^b

Western United States in general and southward over plateau and mountains of Mexico and Guatemala to pine region of northern Honduras (between Ocotelma and Seguatepeque). Range essentially coincident with limits of arid division of the Upper and Lower Sonoran or Austral life zones, but invading, locally, portions of the Boreal "islands," and probably also, sporadically, the western and central portions of the humid division of the Sonoran or Austral life zones (to Missouri, southern Illinois, southern Indiana, etc.).

^a Twenty-five specimens.

^b Twenty specimens.

Specimens from Guatemala and southern Mexico are larger than those from northern Mexico and the southwestern United States, as shown by the following measurements:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at nos- trils.	Tarsus.	Middle toe.	Gradu- ation of tail.
MALES.							
One adult male from Guatemala.....	435	241.5	71	24	72.5	45.5	68.5
Eight adult males from southern Mexico.	434.5	238.5	76.5	26.5	70.5	49	51
Sixteen adult males from western United States and Sonora	429	235.5	73.5	25.5	69	46	49
FEMALES.							
One adult female from Guatemala.....	419	239	73.5	26.5	71.5	47	51
Four adult females from southern Mexico	423	241.5	73	25.5	69	46	48.5
Fifteen adult females from western United States and Sonora	405.5	227	69	24	66	42.5	44.5
Two adult females from Lower Cali- fornia	405.5	220	71	24	64.5	43	49.5

^c As stated on p. 260, the status of the ravens breeding east of the Great Plains and south of the Great Lakes and St. Lawrence (except those of the Boreal islands of the Appalachian Mountain district, which are almost certainly *C. c. principalis*) has not been satisfactorily determined, owing to the difficulty of acquiring material for study. The assignment of central Mississippi Valley records to *C. c. sinuatus* and Atlantic coast records to *C. c. principalis* is therefor purely provisional or tentative.

- C[orvus] sinuatus* WAGLER, Isis, 1829, 748 (Mexico; ex Lichtenstein, manuscript).
- Corvus corax sinuatus* RIDGWAY, Proc., U. S. Nat. Mus., viii, Sept. 2, 1885, 355.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 486.—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 153 (Puebla, Puebla; Jalapa, Vera Cruz).—COOPER, Auk, iv, 1887, 92 (Ventura Co., California).—COOKE, Bird Migr. Miss. Val., 1888, 158, part (w. Kansas; Texas).—MEARNS, Auk, vii, 1890, 256 (mountains of Arizona, breeding down to 3,000 ft.)—MERRIAM, North Am. Fauna, no. 3, 1890, 94 (San Francisco Mt., etc.)—STONE, Proc. Ac. Nat. Sci. Phila., 1890, 214 (Mount Orizaba to summit).—GOSS, Birds Kansas, 1891, 381.—BENDIRE, Life Hist. N. Am. Birds, pt. 2, 1895, 396, pl. 4, fig. 3 (egg).—(?) GRINNELL, Pasadena Acad. Sci., pub. no. 1, 1897, 6, 10, 16 (Santa Barbara and San Nicolas islands,^a California).—(?) BUTLER, Birds of Indiana, 1897, 879 (Dubois and Martin counties, breeding).—LINTON, Bull. Cooper Orn. Club, i, 1899, 68 (Los Angeles Co., California; descr. nests).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 279.
- Corvus corax sinatus* (typographical error) RIDGWAY, Orn. Illinois, i, 1889, 331.
- C[orvus] corax sinuatus* RIDGWAY, Man. N. Am. Birds, 1887, 361.
- Corvus corax sinuatus* ? COX, Auk, xii, 1895, 358 (Mount Orizaba).
- Corvus cacalott* WAGLER, Isis, 1831, 527 (Mexico; based on "*Cacalott* Hernandez, Thes. p. 48, cap. 174").—BONAPARTE, Proc. Zool. Soc. Lond., 1837, 115 (Mexico).—MAXIMILIAN, Reise Nord-Am., ii, 1841, 289 (upper Missouri); Journ. für Orn., 1858, 195 (do.).—GAMBEL, Journ. Ac. Nat. Sci. Phila., i, 1847, 47 (California).—NEWBERRY, Rep. Pacific R. R., Surv., vi, pt. iv, 1857, 82 (California, etc.).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 563; ed. 1860 (Birds N. Am.), atlas, pl. 20; Cat. N. Am. Birds, 1859, no. 424.—KENNERLY, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 31, pl. 20, head (New Mexico; Arizona).—SCLATER and SALVIN, Ibis, 1859, 21 (Chimaltenango and Dueñas, Guatemala, alt. 6,000 ft.); 1860, 34 (plains of Dueñas, Guatemala).—TAYLOR, Ibis, 1860, 112 (mountains of Honduras, bet. Opetelma and Seguatepeque, alt. 5,000 ft.).
- Corvus cacalott* ? SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869 553 (alpine reg. and Cerro Colorado, near Tehuacan, Vera Cruz.)
- C[orvus] cacalott* BONAPARTE, Consp. Av., i, 1850, 387 (North America).
- Corvus catotoll* BONAPARTE, Geog. and Comp. List, 1838, 28.
- Corvus major* PAUL VON WÜRTEMBERG, Erste Reise in Nordl. Amerika, 1835, 294, footnote (Nebraska; nomen nudum).
- Corvus nobilis* GOULD, Proc. Zool. Soc. Lond., v, 1837, 79 (Mexico; type in coll. Brit. Mus.).
- C[orvus] nobilis* BONAPARTE, Consp. Av., i, 1850, 386 (Mexico).
- [*Corvus corax*] *β. nobilis* DUBOIS, Rev. et Mag. de Zool., 1873, 5 (Mexico).
- Corvus splendens* (not of Vieillot, 1817) "Gould" BONAPARTE, Proc. Zool. Soc. Lond., 1837, 115 (erroneous citation of *C. nobilis* Gould).
- Corvus splendens* (?) KENNERLY, Rep. Pacific R. R. Surv., iv, pt. vi, 1856, 11 (Camp 110, New Mexico).
- Corvus corax* (not of Linnaeus) WOODHOUSE, in Rep. Sitgreaves' Expl. Zuffi and Colorado R., 1853, 78.—HEERMANN, Rep. Pacific R. R. Surv., x, pt. vi, 1859, 54, part (California; New Mexico; habits).—SCHLEGEL, Mus. Pays-Bas, Coraces, 1867, 11, part (upper Missouri R.; Mexico).—ALLEN, (?) Mem. Bost. Soc. N. H., i, 1868, 525 (Indiana); Bull. Mus. Comp. Zool., iii, 1872, 178 (Kansas; Colorado; Wyoming; Utah).—COUES, Check List, 1873, no. 226, part; 2d ed., 1882, no. 338, part; Birds N. W., 1874, 204, part.—SHARPE, Cat.

^aSpecimens from these islands not seen by me; they may be referable to *C. s. clarionensis*.

Birds Brit. Mus., iii, 1877, 14, part (Mexico).—McCHESNEY, Bull. U. S. Geol. and Geog. Surv. Terr., v, 1879, 80 (Fort Sisseton, Dakota).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1887, 486, excl. syn., part (Guanajuato, Guadalajara, Orizaba, alpine reg. Vera Cruz, Mazatlan, etc., Mexico; Estanuelas, Dueñas, Chimaltenango, ridge above Calderas, Volcan de Agua, Volcan de Atitlan, Quezaltenango, and San Geronimo, Guatemala; between Opatelma and Seguatepeque, Honduras).

[*Corvus*] *corax* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 40.

[*Corvus*] *corax* COUES, Key N. Am. Birds, 2d ed., 1884, 416, part.

[*Corvus*] *corax* (var.?) COUES, Key N. Am. Birds, 1872, 162, part.

Corvus carnivorus "Bartram" BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 560 (chiefly); ed. 1860 (Birds N. Am.), atlas, pl. 21; Cat. N. Am. Birds, 1859, no. 423, part; Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 20 (Jama-cha Ranch, California; Espia, Sonora).—XANTUS, Proc. Ac. Nat. Sci. Phila., 1859, 192 (Fort Tejon, California).—HENRY, Proc. Ac. Nat. Sci. Phila., 1859, 108 (New Mexico).—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 210, part, pl. 21.—SCLATER, Proc. Zool. Soc. Lond., 1860, 252 (Orizaba, Vera Cruz); Cat. Am. Birds, 1862, 146 (Vera Cruz).—DRESSER, Ibis, 1865, 494 (San Antonio, etc., Texas, winter).—DUGÈS, La Naturelle, i, 1869, 139 (Guanajuato; Guadalajara).—COOPER, Orn. Cal., 1870, 282.—STEVENSON, Prelim. Rep. U. S. Geol. Surv. for 1870 (1871), 465 (Colorado).—SNOW, Birds Kansas, 1873, 8 (w. Kansas).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, pl. 37, fig. 6 (bill).

[*Corvus*] *carnivorus* GRAY, Hand-list, ii, 1870, 11, no. 6184.

Corvus corax, var. *carnivorus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 234, part.—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 283 (Mazatlan); Bull. U. S. Nat. Mus., no. 4, 1876, 25 (Barrio and Tapana, Oaxaca).—(?) RIDGWAY, Ann. Lyc. N. Y., x, 1874, 375 (s. Illinois, resid.).—(?) NELSON, Bull. Essex Inst., ix, 1877, 49 (Richland Co., Illinois, breeding).—BENDIRE, Proc. Bost. Soc. N. H., 1877, 123 (Camp Harney, e. Oregon; descr. nest and eggs).

Corvus corax . . . var. *carnivorus* RIDGWAY, Bull. Essex Inst., v, Nov., 1873, 184, (Colorado).—YARROW and HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1872 (1874), 20 (Nevada; Utah).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 65, 83 (Denver and Fort Garland, Colorado), 122 (New Mexico; Arizona; habits); Zool. Exp. W. 100th Merid., 1875, 324 (habits).

[*Corvus corax*] *γ. carnivorus* DUBOIS, Rev. et Mag. de Zool., 1873, 5, part.

Corvus corax carnivorus RIDGWAY, Bull. Essex Inst., vii, Jan., 1875, 10 (Nevada); Nom. N. Am. Birds, 1881, no. 280, part.—(?) LANGDON, Journ. Cinc. Soc. N. H., 1880, 125 (Union Co., Ohio, 1 spec., Sept., 1879).—BELDING, Proc. U. S. Nat. Mus., v, 1883, 531, 541 (Cerro I. and La Paz, Lower California); vi, 1883, 343 (Guaymas, Sonora), 348 (Victoria Mts., Lower California).

Corvus corax, *β. carnivorus* RIDGWAY, Field and Forest, June, 1877, 208 (Colorado).

Corvus corax . . . *β. carnivorus* RIDGWAY, Orn. 40th Parallel, 1877, 512 (Nevada; s. Idaho; Utah; habits, etc.).

CORVUS CORAX CLARIONENSIS Rothschild and Hartert.

CLARION ISLAND RAVEN.

Similar to *C. c. sinuatus*, but smaller, especially the bill.

Adult male.—Length (skins), 552.4; wing, 395–412.7 (402.6); tail, 215.9–226.1 (221); exposed culmen, 64–71.6 (68.2); depth of bill at

nostrils, 23–25.4 (24.2); tarsus, 66.8–70 (68.4); middle toe, 43.2–44.2 (43.7); graduation of tail, 38.1–53.3 (45.7).^a

Adult female.—Length (skins), 527–571.5 (544.5); wing, 393.7–408.9 (400.7); tail, 210.8–232.4 (220.3); exposed culmen, 66–68.6 (66.9); depth of bill at nostrils, 22.9–25.4 (23.4); tarsus, 64–69.8 (66.9); middle toe, 40.4–45.7 (44); graduation of tail, 35.6–44.4 (41.1).^b

Clarion and San Benedicto islands, Revillagigedo group, off western Mexico; San Clemente and Santa Catalina islands, Santa Barbara group, southern California.^c

Corvus corax sinuatus (not *Corvus sinuatus* Wagler) TOWNSEND, Proc. U. S. Nat. Mus., xiii, 1890, 136 (San Benedicto I.).—GRINNELL, Pub. i, Pasadena Ac. Sci., 1897, 16 (San Clemente I., California).—ANTHONY, Auk, xv, 1898, 315, 318 (San Benedicto and Clarion islands).

Corvus corax clarionensis ROTHSCHILD and HARTERT, Novit. Zool., ix, July 25, 1902, 381 (Clarion I., Revillagigedo group; coll. Tring Mus.).

CORVUS CRYPTOLEUCUS Couch.

WHITE-NECKED RAVEN.

Similar to *C. corax sinuatus*, but decidedly smaller, with relatively shorter and deeper bill, longer nasal plumes, and with the feathers of the neck and breast pure white for at least the basal half.

Adults (sexes alike).—Entirely glossy black, the upper parts (except hindneck) with a violet sheen, the under parts faintly glossed with bluish; feathers of hindneck, sides of neck, lower throat, chest, and

^a Three specimens; one each from Santa Catalina and San Benedicto islands, one from Clarion Island, the latter measured by Messrs. Rothschild and Hartert, only the wing, culmen, and depth of bill being measured.

^b Five specimens, from San Benedicto and San Clemente islands.

The two males from San Benedicto and Santa Catalina islands compare in measurements with that from Clarion Island, as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at nos- trils.	Tarsus.	Middle toe.	Gradua- tion of tail.
MALES.							
One adult male from Santa Catalina Island	412.7	226.1	71.6	24.1	68.6	44.2	53.3
One adult male from San Benedicto Island	400	215.9	69.1	25.4	66.8	43.2	38.1
One adult male from Clarion Island	395	.....	64	23	70	.....	.....

^c None of the specimens examined from San Benedicto, Santa Catalina, and San Clemente islands are as small as the single specimen from Clarion Island (Revillagigedo group) whose measurements are given by Messrs. Rothschild and Hartert, except the length of the tarsus, which is in all of them less than in the latter; but some allowance should doubtless be made for differences in methods of measurement, and the Clarion Island specimen *may* have been an unusually small one. At any rate, the island birds which I for the present refer to this form are evidently nearer to it than to the mainland bird.

breast with basal half or more (concealed) pure white; bill, legs, and feet black; iris brown.

Young.—Head, neck, and body dull black, the plumage of neck, chest, and breast white beneath the surface; feathers of throat short, not lanceolate; wings and tail as in adults; basal half of mandible light-colored (flesh color in life?).

Adult male.—Length (skins), 457.5–508 (484); wing, 337–379 (355.5); tail, 193–214 (199); exposed culmen, 52–59 (57); depth of bill at nostrils, 20–22.5 (21); tarsus, 58–68.5 (62); middle toe, 37.5–43.5 (40.5).^a

Adult female.—Length (skins), 439.5–489 (459); wing, 327.5–360.5 (347.5); tail, 181.5–211 (195.5); exposed culmen, 49.5–58 (53); depth of bill at nostrils, 20–22.5 (22); tarsus, 55.5–64 (59); middle toe, 35–42.5 (38).^b

Great Plains, from southeastern Wyoming (Cheyenne) and western Nebraska (Cherry County, Sidney, etc.), southward to central Mexico, through States of Chihuahua, Coahuila, Nuevo Leon, and Tamaulipas, and Guanajuato; westward through New Mexico and Arizona to coast of southern California (Los Angeles County).

Corvus cryptoleucus COUCH, Proc. Ac. Nat. Sci. Phila., vii, no. ii, 1854, 66 (Tamaulipas, n. e. Mexico; coll. U. S. Nat. Mus.).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 565; ed. 1860 (Birds N. Am.), atlas, pl. 22; Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 20 (Janos and Charco Escondido, Tamaulipas); Cat. N. Am. Birds, 1859, no. 425.—KENNERLY, Rep. Pacific R. R. Surv., x, pt. vi, 1859, 31, pl. 22 (Llano Estacado, Texas).—DRESSER, Ibis, 1865, 494 (Eagle Pass, Texas).—BUTCHER, Proc. Ac. Nat. Sci. Phila., 1868, 150 (Laredo, Texas).—COOPER, Orn. Cal., 1870, 284 (Arizona; Texas).—COUES, Check List, 1873, no. 227; 2d ed., 1882, no. 339; Birds N. W., 1874, 206.—AIKEN, Proc. Bost. Soc. N. H., 1872, 203 (e. base Rocky Mts., Colorado); Am. Nat., vii, 1873, 16 (Cheyenne, Wyoming).—RIDGWAY, Bull. Essex Inst., v, 1873, 184 (Colorado); Field and Forest, June, 1877, 208 (Boulder Co., Colorado, breeding); Nom. N. Am. Birds, 1881, no. 281.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 233, 242, pl. 37, fig. 8 (bill); iii, 1874, 518

^aThirteen specimens.

^bFourteen specimens.

Specimens from the Lower Rio Grande Valley seem to average smaller than those from Arizona to western Texas, as the following measurements show:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at nos- trils.	Tarsus.	Middle toe.
MALES.						
Nine adult males from Arizona to western Texas.	359	204	57.5	21	62.5	40.5
Three adult males from the lower Rio Grande Valley.....	351	195.5	53.5	20.5	61	40.5
One adult male from Guanajuato, Mexico.....	351	199.5	55	21.5	60.5	40
FEMALES.						
Ten adult females from Arizona to western Texas.	352.5	196	53.5	20	59.5	38.5
Four adult females from lower Rio Grande Valley.....	337	192.5	53	19	58	37

- (descr. eggs).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 122 (Colorado Springs, Colorado, Dec.), 160 (Tucson, Arizona, breeding); Zool. Exp. w. 100th Merid., 1875, 326 (habits).—SNOW, Birds of Kansas, 3d ed., 1875, 8 (Phillips Co., w. Kansas).—MCCAULEY, Bull. U. S. Geol. and Geog. Surv. Terr., iii, 1877, 669 (Red R. valley, n. Texas).—SHARPE, Cat. Birds Brit. Mus., iii, 1877, 15, footnote.—GOSS, Bull. Nutt. Orn. Club, vi, 1881, 118 (San Marcial and Galisteo, New Mexico; habits); Auk, i, 1884, 100 (Wallace, w. Kansas, Oct.); Hist. Birds of Kansas, 1891, 382 (w. Kansas, resident).—BREWSTER, Bull. Nutt. Orn. Club, viii, 1882, 201 (Tucson, Arizona; notes).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 487.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1887, 488.—COOKE, Bird Migr. Miss. Val., 1888, 158 (w. Kansas and Nebraska; Texas localities).—BENDIRE, Proc. U. S. Nat. Mus., x, 1888, 555 (Fort Huachuca, Arizona; habits; descr. nest and eggs); Life Hist. N. Am. Birds, ii, 1895, 402, pl. 4, figs. 4-7 (eggs).—ALLEN, Bull. Am. Mus. Nat. Hist., v, 1893, 37 (San Pedro, n. e. Sonora).—SINGLEY, Rep. Geol. Surv. Tex., 1894, 371 (Rio Grande City; Duval Co.).—BRUNER, Rep. Nebr. Hort. Soc. for 1896, 122 (Cherry Co.; near Sidney; Republican R.).—GRINNELL (J.), Pasadena Acad. Sci. pub. no. ii, 1898, 32 (Los Angeles Co., California).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 280.
- [*Corvus*] *cryptoleucus* GRAY, Hand-list, ii, 1870, 13, no. 6222.—COUES, Key N. Am. Birds, 1872, 162.
- [*corvus*] *cryptoleucus* COUES, Key N. Am. Birds, 2d ed., 1884, 41.—RIDGWAY, Man. N. Am. Birds, 1887, 362.

CORVUS AMERICANUS AMERICANUS Audubon.

AMERICAN CROW.

Adults (sexes alike).—Entire plumage deep black; the back, scapulars, rump, upper tail-coverts, wing-coverts, and secondaries with a gloss of metallic violet; the alula, primary coverts, primaries, and outermost rectrices glossed with greenish blue; the middle rectrices glossed with duller or more bluish violet than the back, etc; under parts slightly glossed with bluish violet; bill, legs, and feet, deep black; iris brown.

Young (in first winter).—Similar to adults, but the violet and bluish green gloss of upper parts less distinct, especially on wings and tail; under parts duller black, with a grayish or dull slaty cast to the lower abdomen and anal region.

Young.—Head, neck, and body dull sooty or grayish black, the back slightly glossed with violet; wings and tail as in adults, but less strongly glossed with violet, etc.; iris grayish.

Adult male.—Length (skins), 406.5-489 (450.5); wing, 305-337 (321); tail, 167.5-195.5 (182); exposed culmen, 48-53.5 (51.5); depth of bill at nostrils, 17.5-20.5 (19.5); tarsus, 60-65.5 (62); middle toe, 35.5-40 (38).^a

Adult female.—Length (skins), 385-470 (421.5); wing, 282-326.5 (305); tail, 154.5-198 (177); exposed culmen, 45.5-50 (48); depth of bill at nostrils, 17.5-19.5 (18); tarsus, 55-61 (57.5); middle toe, 32.5-36.5 (35).^b

^a Eleven specimens.

, ^b Fourteen specimens.

Temperate eastern North America (Canadian district of Boreal Province southward), except peninsula of Florida; north on Atlantic coast to Newfoundland and Magdalen Islands (southern Labrador?), on west side of Hudson Bay to Nelson River, and in the interior nearly to the Arctic coast (lower Anderson River); west to beginning of the arid region.

Corvus corone (not of Linnæus) WILSON, *Am. Orn.*, iv, 1811, 79, pl. 25, fig. 3.—BONAPARTE, *Ann. Lyc. N. Y.*, ii, 1826, 56.—SWAINSON and RICHARDSON, *Fauna Bor.-Am.*, ii, 1831, 291.—NUTTALL, *Man. Orn. U. S. and Can.*, i, 1832, 209.

Corvus americanus AUDUBON, *Orn. Biog.*, ii, 1834, 317 (e. United States; type in coll. U. S. Nat. Mus. ?); v. 1839, 477, pl. 156; Synopsis, 1839, 150; *Birds Am.*, oct. ed., iv, 1842, 87, pl. 225.—BONAPARTE, *Geog. and Comp. List*, 1838, 29.—NUTTALL, *Man. Orn. U. S. and Can.*, 2d ed., i, 1840, 221.—JARDINE, *Contr. Orn.*, 1848, 79 (Bermudas, resident).—HURDIS, *Jardine's Contr. Orn.*, 1850, 5 (Bermudas, introduced!).—WOODHOUSE, *Sitgreaves' Expl. Zuffi and Col. R.*, 1853, 78, part (Indian Territory).—BAIRD, *Rep. Pacific R. R. Surv.*, ix, 1858, 566, part (Nelson R., Hudson Bay territory; District Columbia; Illinois; Fort Riley, Kansas; Fort Union, etc., Nebraska?); ed. 1860 (*Birds N. Am.*), atlas, pl. 23; *Cat. N. Am. Birds*, 1859, no. 426, part.—SCHLEGEL, *Bijdr. Dierk.*, ii, 1859, 10 (monogr.); *Mus. Pays-Bas, Coraces*, 1867, 24.—COUES, *Proc. Ac. Nat. Sci. Phila.*, 1861, 226 (off coast Labrador, 1 spec., July 14); *Check List*, 1873, no. 228, part.—SCLATER, *Cat. Am. Birds*, 1862, 146 (Nova Scotia).—BLAKISTON, *Ibis*, 1862, 7 (plains Saskatchewan).—(?) ALLEN, *Proc. Bost. Soc. N. H.*, xvii, 1874, 61 (North Dakota).—BAIRD, BREWER, and RIDGWAY, *Hist. N. Am. Birds*, ii, 1874, 233, part, pl. 37, fig. 5.—MCCHESNEY, *Bull. U. S. Geol. and Geog. Surv. Terr.*, v, 1879, 80 (Fort Sisseton and Fort Berthold, Dakota).—BREWSTER, *Proc. Bost. Soc. N. H.*, xvii, 1883, 379 (Gulf St. Lawrence; habits).—(?) SETON, *Auk*, iii, 1886, 321 (w. Manitoba, summer).—AMERICAN ORNITHOLOGISTS' UNION, *Check List*, 1886, no. 488, part.—COOKE, *Bird Migr. Mississippi Val.*, 1888, 158 (dates, etc.).—RIDGWAY, *Orn. Illinois*, i, 1889, 331.—BISHOP, *Auk*, vi, 1889, 147 (Magdalen Islands, breeding).—PALMER (W.), *Proc. U. S. Nat. Mus.*, xiii, 1890, 262 (Magdalen and Mingan Islands; St. Johns, Newfoundland).—MACFARLANE, *Proc. U. S. Nat. Mus.*, xiv, 1891, 439 (lower Anderson R., breeding).—THOMPSON, *Proc. U. S. Nat. Mus.*, xiii, 1891, 568 (Manitoba; habits, etc.).—NUTTING, *Bull. Labrat. N. H. Univ. Iowa*, ii, 1893, 274 (lower Saskatchewan; habits).—DWIGHT, *Auk*, x, 1893, 10 (Prince Edwards I., breeding).—BENDIRE, *Life Hist. N. Am. Birds*, ii, 1895, 405, pl. 4, figs. 8-12, pl. 5, figs. 21, 22 (eggs).—NEBELING, *Our Native Birds*, etc., ii, 1896, 309.—COUBEAUX, *Ottawa Nat.*, 1900, 29 (s. Saskatchewan, summer res.).—FLEMING, *Auk*, xviii, 1901, 40 (Perry Sound and Muskoka, n. w. Ontario).—BAILEY (Florence M.), *Handb. Birds W. U. S.*, 1902, 281, part.

[*Corvus*] *americanus* BONAPARTE, *Consp. Av.*, i, 1850, 385.—MAXIMILIAN, *Journ. für Orn.*, 1858, 198 (critical, habits, etc.).—NELSON, *Bull. Essex Inst.*, viii, 1876, 112 (n. e. Illinois).—RIDGWAY, *Man. N. Am. Birds*, 1887, 362.

[*Corvus americanus*] BARROWS and SCHWARZ, *Bull. U. S. Dept. Agric.*, no. 6, 1895, 1-98 (range, habits, food, etc.).

[*Corvus*] *americanus* GRAY, *Hand-list*, ii, 1870, 12, no. 6198.—COUES, *Key N. Am. Birds*, 1872, 162, part.

[*Corvus americanus*] a. *americanus* COUES, *Birds N. W.*, 1874, 206, part.

[*Corvus americanus*] var. *americanus* BAIRD, BREWER, and RIDGWAY, *Hist. N. Am. Birds*, ii, 1874, 233, part.

Corone americanus BOUCARD, Catal. Avium, 1876, 202, no. 8808.

Corone americana SHARPE, Cat. Birds, Brit. Mus., iii, 1877, 34, part (Toronto, Ontario; "Upper Canada").

Corvus frugivorus COUES, Proc. Ac. Nat. Sci. Phila., 1875, 346 (ex *Corvus frugivorus*, the common crow, Bartram, Travels, 290; Pennsylvania); Check List, 2d ed., 1882, no. 340.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 282.—(?) NEHRING, Bull. Nutt. Orn. Club, vii, 1882, 168 (Galveston Bay and near Brazos R., s. e. Texas).—MERRIAM, Bull. Nutt. Orn. Club, vii, 1882, 236 (Point du Monts, prov. Quebec, Canada).—CHAMBERLAIN, Bull. Nat. Hist. Soc. N. B., i, 1882, 42 (New Brunswick, sum. resid.).—(?) OGILBY, Scient. Proc. Roy. Dubl. Soc., iii, 1882, 49 (Navarro Co., n. e. Texas, resident; habits).

C[orvus] frugivorus COUES, Key N. Am. Birds, 2d ed., 1884, 417.

CORVUS AMERICANUS PASCUUS COUES.

FLORIDA CROW.

Similar to *C. a. americanus*, but averaging smaller, except bill and feet.

Adult male.—Length (skins), 413–482.5 (452); wing, 279.5–324 (304); tail, 153–185.5 (175); exposed culmen, 48–55.5 (51.5); depth of bill at nostrils, 18–20 (19); tarsus, 58.5–66.5 (62.5); middle toe, 36–38.5 (38).^a

Adult female.—Length (skins), 425.5–457.5 (438); wing, 293.5–311.5 (304); tail, 166.5–175 (169); exposed culmen, 48–53.5 (51); depth of bill at nostrils, 18–20.5 (19); tarsus, 58.5–63.5 (62); middle toe, 37.5–39.5 (38).^a

Peninsula of Florida.^b

Corvus americanus, var. *floridanus* (not *Corvus floridanus* Bonaparte, 1826) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 568 (near Fort Dallas, s. Florida; coll. U. S. Nat. Mus.); ed. 1860 (Birds N. Am.), atlas, pl. 67, fig. 1.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 247.—(?) BROWN, Bull. Nutt. Orn. Club, iv, 1879, 10 (Coosada, Alabama).

C[orvus] var. *floridanus* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 560.

[*Corvus americanus*] var. *Corvus floridanus* BAIRD, Cat. N. Am. Birds, 1859, no. 427.

[*Corvus americanus*] var. *floridanus* COUES, Key, 1872, 163.

Corvus americanus . . . var. *floridanus* COUES, Check List, 1873, no. 228a.

Corvus floridanus BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, pl. 37, fig. 9 (bill).

[*Corvus americanus*] b. *floridanus* COUES, Birds N. W., 1874, 206 (synonymy).

[*Corvus americanus*] var. *floridanus* HENSHAW, Orn. Rep. Wheeler's Surv., 1879, 305 (crit.).

Corvus frugivorus floridanus RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 184; Nom. N. Am. Birds, 1881, no. 282a.—COUES, Check List, 2d ed., 1882, no. 341.

C[orvus] f[rugivorus] floridanus COUES, Key, N. Am. Birds, 2d ed., 1884, 417.

Corvus americanus floridanus AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 488a.—SCOTT, Auk, vi, 1889, 319 (Tarpon Springs, Punta Rasa, and Key West, Florida); vii, 1890, 311 (East Key, Florida).—MORTIMER, Auk, vii, 1890, 341 (Orange Co., Florida; habits).—BENDIRE, Life Hist. N. Am. Birds, pt. 2, 1895, 413, pl. 4, figs. 13, 14 (eggs).

^a Six specimens.

^b (?) Also coast district of Georgia, Alabama, etc.

C[orvus] americanus floridanus RIDGWAY, Man. N. Am. Birds, 1887, 362.

Corone floridana SHARPE, Cat. Birds Brit. Mus., iii, 1877, 35, footnote.

Corvus americanus (not of Audubon) ALLEN, Bull. Mus. Comp. Zool., ii, 1871, 297, part, excl. syn. part (e. Florida).—MAYNARD, Birds E. N. Am., 1881, 155, part (Florida).

C[orvus] a[mericanus] pascuus COUES, Auk, xvi, Jan., 1879, 84, in text (in lieu of *Corvus floridanus*, preoccupied).

Corvus americanus pascuus AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 112.

CORVUS AMERICANUS HESPERIS Ridgway.

WESTERN CROW.

Similar to *C. a. americanus*, but decidedly smaller, with bill relatively smaller and more slender.

Adult male.—Length (skins), 387.5–444.5 (412.5); wing, 282–325 (302.5); tail, 159–190 (171); exposed culmen, 45.5–50.5 (47.5); depth of bill at nostrils, 15–17.5 (16.5); tarsus, 54.5–58.5 (57.5); middle toe, 33–38 (35.5).^a

Adult female.—Length (skins), 394–426 (408.5); wing, 278–300 (295); tail, 160.5–183 (169.5); exposed culmen, 43–48 (45.5); depth of bill at nostrils, 15–16.5 (16); tarsus, 53–59 (55.5); middle toe, 30.5–37.5 (34).^b

Western North America, from Rocky Mountains (from eastern portion of arid region?) to Pacific coast, except coast district from Straits of Fuca and Puget Sound northward; north, in the interior, to British Columbia (Fort St. James); south to southwestern Texas, New Mexico, and southern Arizona, but not recorded as breeding at extreme southern localities.

Corvus ossifragus (not of Wilson) GAMBEL, Journ. Ac. Nat. Sci. Phila., 2d ser., i, 1847, 47 (coast California); Proc. Ac. Nat. Sci. Phila., 1847, 203 (do.).—WOODHOUSE, 'Sitgreaves' Expl. Zuni and Col. R., 1853, 78, part (Texas?, New Mexico; California).—NEWBERRY, Rep. Pacific R. R. Surv., x, pt. iv, 1857, 83 (Willamette and Columbia rivers; coast Oregon and California).—(?) HATCH, Birds Minnesota, 1892, 270.^c

Corvus americanus (not of Audubon) MAXIMILIAN, Reis. in Nord-Amerika, i, 1839, 140 (upper Missouri R.).—GAMBEL, Journ. Ac. Nat. Sci. Phila., 2d ser., i, 1847, 47, (California and "interior").—MCCALL, Proc. Ac. Nat. Sci. Phila., 1851, 214 (New Mexico, Texas, etc.).—WOODHOUSE, 'Sitgreaves' Expl. Zuni and Col. R., 1853, 78, part (New Mexico, etc.).—NEWBERRY, Rep. Pacific R. R. Surv., x, pt. iv, 1857, 82 (California; Des Chutes R., Oregon).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 566, part (Tulare Valley and Presidio, California; Fort Vancouver, Washington); Cat. N. Am. Birds, 1859, no. 426, part.—HENRY, Proc. Ac. Nat. Sci. Phila., 1859, 108 (New Mexico).—HEERMANN, Rep. Pacific R. R. Surv., x, pt. vi, 1859, 54 (California).—COOPER and STICKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 211 (Washington, chiefly e. of

^aThirteen specimens.

^bTen specimens.

^cA flock of "not less than a hundred and fifty" said to have been seen near Minneapolis. Sept. 21, 1869.

- Cascade range).—DRESSER, Ibis, 1865, 494 (San Antonio, etc., Texas).—STEVENS, Prelim. Rep. U. S. Geol. Surv. for 1870 (1871), 465 (La Bonte Creek, Wyoming).—ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 178, part (Utah?); Proc. Bost. Soc. N. H., xvii, 1874, 46 (upper Missouri R.), 61 (Yellowstone, Heart R., etc., Montana).—HOLDEN, Proc. Bost. Soc. N. H., 1872, 203 (Sherman, Wyoming).—COUES, Check List, 1873, no. 228, part; Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 606, part (Souris R., North Dakota, and Missouri R., Montana, breeding).—YARROW and HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1871-73 (1874), 20 (Provo, Utah).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 160 (Apache, Arizona, Nov.); Ann. Lyc. N. Y., xi, 1874, 7 (Provo, Utah); Zool. Exp. W. 100th Merid., 1875, 327 (Provo, Utah; Navajo Creek, New Mexico; Apache, Arizona; habits).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 243, part.—RIDGWAY, Field and Forest, June, 1877, 208 (Colorado); Orn. 40th Parallel, 1877, 514 (Sacramento Valley, California; Truckee Valley and Humboldt marshes, Nevada; habits, etc.); Proc. U. S. Nat. Mus., i, 1879, 422 (central California, resident; crit.).—(?) McCauley, Bull. U. S. Geol. and Geog. Surv., Terr., iii, 1877, 669 (McClellan Creek, n. Texas).—STEPHENS, Bull. Nutt. Orn. Club, iii, 1878, 94 (Rio Mimbres, New Mexico, Apr.; South Park, Colorado, Oct.).—MEARNS, Bull. Nutt. Orn. Club, iv, 1879, 166 (Fort Klamath, e. Oregon, May); Auk, vii, 1890, 256 (Mogollon Mts., etc., Arizona, breeding in pine and spruce belts).—DREW, Bull. Nutt. Orn. Club, vi, 1881, 143 (San Juan Co., Colorado).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 488, part.—ANTHONY, Auk, iii, 1886, 166 (Washington Co., Oregon).—EVERMANN, Auk, iii, 1886, 181 (Ventura Co., California, resident).—SCOTT, Auk, iv, 1887, 21 (Mineral Creek and Santa Catalina Mts., Arizona; not in summer).—LLOYD, Auk, iv, 1887, 290 (Concho Co., w. Texas, breeding).—TOWNSEND, Proc. U. S. Nat. Mus., x, 1887, 212 (upper Sacramento Valley, California; habits).—EMERSON, Bull. Cal. Ac. Sci., no. 7, 1887, 422 (Volcano Mts., San Diego Co., California).—(?) BECKHAM, Proc. U. S. Nat. Mus., x, 1888, 669 (Leon Springs, Texas, Mar.).—HASBROUCK, Auk, vi, 1889, 240 (Eastland Co., Texas).—BELDING, Land Birds Pacific Coast Distr., 1890, 113 (localities in California, Oregon, Washington, and Nevada).—CHAPMAN, Bull. Am. Mus. N. H., iii, 1890, 142 (British Columbia).—MERRIAM, N. Am. Fauna, no. 3, 1890, 94 (San Francisco Mt., Arizona); no. 5, 1891, 100 (Lemhi Valley, Fort Lapwai, etc., Idaho).—FISHER, N. Am. Fauna, no. 7, 1893, 71 (Pahrump Valley, Nevada, Feb., Mar.; Bakersfield, San Joaquin Valley, etc., California).—RHODES, Proc. Ac. Nat. Sci. Phila., 1893, 46, part (int. British Columbia; crit.).—RICHMOND and KNOWLTON, Auk, xi, 1894, 305 (Gallatin Valley, etc., Montana).—THORNE, Auk, xii, 1895, 215 (Fort Keogh, Montana).—BENDIRE, Life Hist. N. Am. Birds, pt. 2, 1895, 405, part.—DAWSON, Auk, xiv, 1897, 117 (Okanogan Co., Washington).—MERRILL, Auk, xiv, 1897, 356 (Fort Sherman, Idaho).—COOKE, Birds Colorado, 1897, 92 (resident; descr. nest and eggs).—GRINNELL (J.), Pasadena, Ac. Sci., Pub. ii, 1898, 32 (Los Angeles Co., California, resident).—(?) KOBÉ, Auk, xvii, 1900, 354 (Cape Disappointment, Washington, abundant resid.).—(?) RATHBUN (S. F.), Auk, xix, 1902, 136 (Seattle, Washington; common).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 201, part.
- [Corvus] americanus* HENSHAW, Orn. Rep. Wheeler's Surv. 1879, 305 (habits).
- [Corvus americanus]* a. *americanus* COUES, Birds N. W., 1874, 206, part.
- Corone americanus* BOUCARD, Cat. Avium, 1876, 282, no. 8833, part (California).
- Corone americana* SHARPE, Cat. Birds Brit. Mus., iii, 1877, 34, part (Colville, British Columbia; California; 49th Parallel?).

- Corvus frugivorus* (not of Coues ex Bartram) RIDGWAY, Nom. N. Am. Birds, 1881, no. 282, part.—COUES, Check List, 2d ed., 1882, no. 340, part.—BROWN, Bull. Nutt. Orn. Club, vii, 1882, 40 (Boerne, w. Texas).—(?) HOFFMANN, Proc. Bost. Soc. N. H., xxi, 1882, 400 (Fort Berthold, Dakota).—HENSHAW, Auk, iii, 1886, 75 (upper Pecos R., New Mexico, Oct.).
- C[orvus] frugivorus* COUES, Key N. Am. Birds, 2d ed., 1884, 417, part.
- C[orvus] americanus hesperis* RIDGWAY, Man. N. Am. Birds, 1887, 362 (Fort Klamath, Oregon; coll. U. S. Nat. Mus.).
- Corvus americanus hesperis* RIDGWAY, Man. N. Am. Birds, 1887, 592; 2d ed., 1896, 613.—MERRILL, Auk, v, 1888, 262 (Fort Klamath, e. Oregon).—FANNIN, Check List Birds Brit. Col., 1891, 33 (e. and w. sides Cascade range, British Columbia).
- Corvus caurinus* (not of Baird) (?) COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 211, part (coast Oregon).—COOPER, Orn. Cal., 1870, 285, part (California; n. Rocky Mts.).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1876, 251 (Los Angeles, California; habits; notes).—BENDIRE, Proc. U. S. Nat. Mus., 1877, 123 (Camp Harney, e. Oregon).—EVERMANN, Auk, iii, 1886, 181 (Ventura Co., California; resident).
- Corvus americanus* var. *caurinus* NELSON, Proc. Bost. Soc. N. H., xvii, 1875, 360 (Nevada; California).
- Corvus (americanus* var.) *caurinus* COOPER, Proc. Cal. Ac. Sci., vi, 1875 (1876), 197, (crit.; descr. nest and eggs).

CORVUS AMERICANUS CAURINUS (Baird).

NORTHWEST CROW.

Similar to *C. a. hesperis*, but smaller, with relatively smaller feet.

Adult male.—Length (skins), 374.5–413 (401); wing, 274.5–292.5 (283.5); tail, 152–170.5 (163); exposed culmen, 43.5–49 (47); depth of bill at nostrils, 16–17.5 (16.5); tarsus, 46–53 (51); middle toe, 31.5–35 (33).^a

Adult female.—Length (skins), 326.5–409 (381.5); wing, 256.5–284.5 (272); tail, 144.5–162.5 (153); exposed culmen, 41.5–47.5 (45); depth of bill at nostrils, 15–17 (16); tarsus, 45–51 (48); middle toe, 28–33 (30.5).^b

Northwest coast of North America, from northwestern Washington (Neah Bay, Puget Sound, etc.) to Kadiak Island and Alaskan peninsula (Kukak Bay).

- Corvus caurinus* BAIRD, Rep. Pacific R. R. Surv., ix, June 29, 1858, 569 (Fort Steilacoom, Washington; coll. U. S. Nat. Mus.); ed. 1860 (Birds N. Am.), atlas, pl. 24; Cat. N. Am. Birds, 1859, no. 428.—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 211, part, pl. 24 (coast Washington; habits).—DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 286 (Sitka, Alaska).—COOPER, Orn. Cal., 1870, 285, part.—FINSCH, Abh. Nat. Brem., iii, 1872, 41 (Sitka); Journ. für Orn., 1883, 270 (Chilcoat and Teetchehli, Alaska).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 248, pl. 37, fig. 3.—RIDGWAY, Proc. U. S. Nat. Mus., xvi, 1893, 664 (Barclay

^a Sixteen specimens.

^b Fourteen specimens.

- Sound, Alaska).—BEAN, Proc. U. S. Nat. Mus., v, 1882, 159 (Sitka, Georges I., and Port Althorp, Alaska).—COUES, Check List, 2d ed., 1882, 342.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 489.—NELSON, Nat. Hist. Coll. Alaska, 1887, 168 (Sitka; Georges I.).—BELDING, Land Birds Pacific Distr., 1890, 115 (British Columbia; notes).—CHAPMAN, Bull. Am. Mus. N. H., iii, 1890, 142 (Ashcroft, Westminster, Mount Lehman, and Vancouver I., British Columbia; Cape Disappointment and Kalama, Washington; crit.; measurements).—FANNIN, Check List Birds Brit. Col., 1891, 33 (coast).—LAWRENCE (R. H.), Auk, ix, 1892, 45 (Grays Harbor, Washington).—ROADS, Auk, x, 1893, 18-21 (crit.; measurements); Proc. Ac. Nat. Sci. Phila., 1893, 46, part (coast British Columbia, crit.).—BENDIRE, Life Hist. N. Am. Birds, ii, 1895, 414, pl. 4, fig. 15 (egg).—GRINNELL (J.), Auk, xv, 1898, 128 (Sitka).—(?) KOBBE, Auk, xvii, 1900, 354 (Cape Disappointment, Washington; abundant resid.; habits; food).—BOWLES, Condor, ii, 1900, 84 (near Tacoma, Washington; habits; descr. nest and eggs).—GRINNELL, Condor, iii, 1901, 23 (Prince William Sound, Alaska).—RATHBUN (S. F.), Auk, xix, 1902, 136 (Seattle, Washington; common resid.).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 282.
- [*Corvus*] *caurinus* GRAY, Hand-list, ii, 1870, 13, no. 6214.
- [*Corvus*] *caurinus* COUES, Key N. Am. Birds, 2d ed., 1884, 417.—RIDGWAY, Man. N. Am. Birds, 1887, 363.
- [*Corvus americanus*.] Var. *caurinus* COUES, Key, 1872, 163.—HENSHAW, Orn. Rep. Wheeler's Surv., 1879, 305 (crit.).
- Corvus americanus* . . . var. *caurinus* COUES, Check List, 1873, no. 228b.
- [*Corvus americanus*.] b. ? *caurinus* COUES, Birds N. W., 1874, 206, part (synonymy).
- Corone caurina* SHARPE, Cat. Birds Brit. Mus., iii, 1877, 36 (Vancouver I.).
- Corvus americanus caurinus* RHOADS, Auk, x, Jan., 1893, 31, part (includes *C. a. hesperis*); Proc. Ac. Nat. Sci. Phil., 1893, 63, part (do.).
- Corvus frugivorus caurinus* RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 184; Nom. N. Am. Birds, 1881, no. 232b.

CORVUS OSSIFRAGUS Wilson.

FISH CROW.

Similar to *C. americanus*, but smaller than the smallest race of the latter (*C. a. caurinus*), with relatively smaller bill; plumage much more glossy black, the gloss more bluish above, more greenish beneath.

Adults (sexes alike).—Entire plumage glossy black, the upper parts glossed with bluish violet (more purplish violet on lesser wing-coverts and secondaries), the under parts glossed with bluish green or greenish blue; bill, legs, and feet black; iris brown.

Adult male.—Length (skins), 379-394 (382.5); wing, 264.5-300 (278); tail, 148-176.5 (158.5); exposed culmen, 40.5-45 (43); depth of bill at nostrils, 14.5-15.5 (15); tarsus, 45.5-50 (48); middle toe, 33.5-40 (35.5).^a

Adult female.—Length (skins), 356-406.5 (373); wing, 264.5-282.5 (271.5); tail, 137.5-165 (152); exposed culmen, 39-42 (40.5); depth of

^a Nine specimens.

bill at nostrils, 13.5-15 (14); tarsus, 44.5-47 (46); middle toe, 32.5-38-5 (34).^a

Atlantic and Gulf coast districts of United States, including peninsula of Florida; north to lower Hudson Valley and shores of Long Island Sound (breeding in eastern Connecticut near Rhode Island border), casually to Massachusetts (Plymouth County, Wareham, Springfield, etc.); west along the Gulf coast to Louisiana; not restricted to the immediate coast, but extending back to base of Blue Ridge Mountains (at least in summer), and abundant about lakes and streams throughout interior of Florida.

Corvus ossifragus WILSON, Am. Orn., v, 1812, 27, pl. 37, fig. 2.—BONAPARTE, Journ. Ac. Nat. Sci. Phila., iii, 1824, 360; Ann. Lyc. N. Y., ii, 1828, 57; Geog. and Comp. List, 1838, 27.—WAGLER, Sept. Av., 1827, Corvus, sp. 12.—NUTTALL, Man. Orn. U. S. and Can., i, 1832, 216.—AUDUBON, Orn. Biog., ii, 1834, 268; v, 1839, 479, pl. 146; Synopsis, 1839, 151; Birds Am., oct. ed., iv, 1842, 94, pl. 226.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 751; ed. 1860 (Birds N. Am.), atlas, pl. 67, fig. 2; Cat. N. Am. Birds, 1859, no. 429.—SCHLEGEL, Bijdr. Dierk. Amsterd., 1859, 14; Mus. Pays-Bas, Coraces, 1867, 32.—ALLEN, Proc. Essex Inst., iv, 1864, 85 (s. New England); Bull. Comp. Zool., ii, 1871, 297 (e. Florida).—LAWRENCE, Ann. Lyc. N. Y., viii, 1866, 289 (near New York City).—COUES, Check List, 1873, no. 229; Birds N. W., 1874, 207, footnote (synonymy).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 251, pl. 37, fig. 7.—BREWSTER, Bull. Nutt. Orn. Club, i, 1876, 19 (Cambridge, Massachusetts, 1 spec., Mar. 16); Auk, iv, 1887, 162 (Wareham, Massachusetts, 1 spec., July 16).—MERRIAM, Trans. Conn. Ac. Sci., iv, 1877, 49 (rare sum. visit. to Connecticut).—PURDIE, Bull. Nutt. Orn. Club, ii, 1877, 13 (New England records); v, 1880, 240 (Long and Staten islands, New York, breeding).—MEARNS, Bull. Nutt. Orn. Club, iii, 1878, 45 (near West Point, New York, 1 spec., May 7).—EAGLE, Bull. Nutt. Orn. Club, iii, 1878, 47 (Rockaway, Long I., July 17).—ALLEN, Bull. Nutt. Orn. Club, iii, 1878, 47 (as *jo* New England occurrences).—BICKNELL, Bull. Nutt. Orn. Club, iii, 1878, 151 (Riverdale, New York, 1 pair, Feb. 24).—ZEREGA, Bull. Nutt. Orn. Club, iv, 1879, 239 (Seabright, New Jersey, Apr. 14); v, 1880, 205 (New Jersey, Long I., etc.; habits; measurements).—PURDIE, Bull. Nutt. Orn. Club, v, 1880, 240 (Long I.; Staten I.).—MAYNARD, Birds E. N. Am., 1881, 159).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 283; Bull. Nutt. Orn. Club, vii, 1882, 250 (Charlottesville, Virginia, common).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 490.—COOKE, Bird Migr. Misc. Val., 1888, 159 (s. Louisiana).—SCOTT, Auk, vi, 1889, 319 (Punta Rasa, s. w. Florida, resident).—EAMES, Auk, vi, 1889, 338 (Stratford and Fairfield, Connecticut, breeding); x, 1893, 89 (Bridgeport and Fairfield, Connecticut).

^a Eight specimens.

Florida specimens compare in measurements with more northern ones as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at nos- trils.	Tarsus.	Middle toe.
MALES.						
Five adult males, Long Island to North Carolina.	275.5	157	42.5	15	48.5	37.5
Four adult males from Florida.....	281.5	159	42.5	15	47	34
FEMALES.						
Four adult females from District of Columbia	273.5	153	40	14	46.5	34.5
Four adult females from Florida.....	269.5	151	40	14	45.5	33.5

Mar. to May; Mount Vernon, New York, breeding).—SCHICK, Auk, vii, 1890, 329 (Seven-mile Beach, New Jersey, breeding).—CORY, Cat. W. I. Birds, 1892, 124 (Cuba?; very doubtful).—BENDIRE, Life Hist. N. Am. Birds, pt. 2, 1895, 415, pl. 4, figs. 16, 17 (eggs).—NEHRLING, Our Native Birds, etc., 1896, 311.—MORRIS, Auk, xiv, 1897, 100 (Springfield, Massachusetts, 1 spec., June 9).—HILL, Auk, xix, 1902, 93 (New London, Connecticut, and near Rhode Island border, breeding).

[Corvus] ossifragus GRAY, Gen. Birds, ii, 1846, 315.—BONAPARTE, Consp. Av., i, 1850, 385.—RIDGWAY, Man. N. Am. Birds, 1887, 363.

[Corvus] ossifragus GRAY, Hand-list, ii, 1870, 13, no. 6213.—COUES, Key N. Am. Birds, 1872, 163.—(?) SCLATER and SALVIN, Nom. Av. Neotr., 1873, 40 (Cuba).—CORY, List Birds W. I., 1885, 14 (Cuba?).

Corone ossifraga BOUCARD, Catalog. Avium, 1876, 282, no. 8853.

Colinus ossifragus SHARPE, Cat. Birds Brit. Mus., iii, 1877, 29.

Corvus maritimus "Bartr[am]" COUES, Check List, 2d ed., 1882, no. 343 (ex *Corvus maritimus*, the great sea-side crow or rook, Bartram, Travels).

[Corvus] maritimus COUES, Key N. Am. Birds, 2d ed., 1884, 417.

CORVUS MEXICANUS Gmelin.

MEXICAN CROW.

Somewhat like *C. ossifragus*, but decidedly smaller and plumage much more lustrous.

Adults (sexes alike).—Pileum, hindneck, wing-coverts, and secondaries lustrous dark violet; sides of neck, back, scapulars, rump, upper tail-coverts, and primary coverts, lustrous dark violet-blue; alula, primaries, and tail dark steel blue, the middle rectrices tinged with violet and the outermost primaries more greenish blue; sides of head and under parts lustrous dark steel blue or greenish steel blue, becoming more decidedly greenish posteriorly, the anterior portions sometimes inclining to violet; bill, legs, and feet black; iris brown.

Adult male.—Length (skins), 362–388.5 (370.5); wing, 246.5–259 (250.5); tail, 146.5–158 (155.5); exposed culmen, 40–42 (41); depth of bill at nostrils, 13–14.5 (14); tarsus, 38.5–42.5 (41); middle toe, 28–31.5 (30).^a

Adult female.—Length (skins), 338–355.5 (344); wing, 231–241.5 (236); tail, 143.5–158.5 (148); exposed culmen, 37.5–40.5 (38.5); depth of bill at nostrils, 12.5–13 (13); tarsus, 38–41 (39); middle toe, 27.5–29 (28).^b

^a Eight specimens.

^b Six specimens.

There seems to be no difference between specimens from opposite sides of Mexico; following are their average measurements:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at nos- trils.	Tarsus.	Middle toe.
MALES.						
Four adult males from Tamaulipas	253	158.5	41.5	14	41	30.5
Four adult males from Sonora to Tepic	250	157	40.5	13	40.5	29.5
FEMALES.						
One adult female from Tamaulipas	236.5	144.5	38.5	13	38	28
Five adult females from Sonora and Sinaloa	234.5	147.5	38.5	13	39	28.5

The greater part of Mexico; north to Sonora (Alamos; Camoa; Altata) and Tamaulipas (Linares; Alta Mira), south to San Luis Potosi (Valles) and Territory of Tepic (San Blas; Acaponeta; Navarrete) and Colima (Manzanilla).

[*Corvus*] *mexicanus* GMELIN, Syst. Nat., i, 1788, 375 (based on *Mexican Crow* Latham, Gen. Synop. Birds, i, 396).—LATHAM, Index Orn., i, 1790, 164.—GRAY, Hand-list, ii, 1870, 13, no. 6219.

Corvus mexicanus LICHTENSTEIN, Preis-Verz. Mex. Vög., 1830, 1; Journ. für Orn., 1863, 56 (reprint).—SCHLEGEL, Bijdr. Dierk. Amsterd., ii, 1859, 11, pl. 1, fig. 25; Mus. Pays-Bas, Coraces, 1867, 25.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, pl. 37, fig. 11.—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 283 (Mazatlan; Colima; habits).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1887, 488.—JOUY, Proc. U. S. Nat. Mus., xvi, 1893, 782 (Tampico, Tamaulipas).—RICHMOND, Proc. U. S. Nat. Mus., xviii, 1896, 630 (Alta Mira, Tamaulipas).—NELSON, N. Am. Fauna, no. 14, 1898, 50 (Tres Marias Islands; straggler).—LANTZ, Trans. Kans. Ac. Sci. for 1896-97 (1899), 222 (Altata, Sinaloa).

[*Corvus*] *mexicanus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 233.—RIDGWAY, Man. N. Am. Birds, 1887, 363.

Corone mexicana SHARPE, Cat. Birds Brit. Mus., iii, 1877, 36.

CORVUS PALMARUM Württemberg.

PALM CROW.

Adults (sexes alike).—Entirely black; strongly glossed with violet on upper parts, the under parts faintly glossed with the same; edges of alulae, primary coverts, and primaries glossed with violet-bluish; bill, legs, and feet black; iris brown?

Adult female.—Length (skin), 368.5; wing, 260.5; tail, 149.5; exposed culmen, 51; depth of bill at nostrils, 16; tarsus, 51.5; middle toe, 29.5. Island of Haiti, Greater Antilles.

Corvus palmarum PAUL VON WÜRTTEMBERG, Erste Reise Nordlich. Amerika, 1835, 68, footnote (Cibao Mts., Santo Domingo).

Corvus solitarius PAUL VON WÜRTTEMBERG, Naumannia, ii, Zweites heft, 1852, 55 (Loma de San Juan, "Haiti," i. e., Santo Domingo?).—BONAPARTE, Compl. Rend., xxxvii, 1853, 829.—SCHLEGEL, Bijdr. Dierk. Amsterd., ii, 1859, pl. 1, fig. 17; Mus. Pays-Bas, Coraces, 1867, 24 (Santo Domingo).—CORY, Birds Haiti and San Dom., 1885, 75 (Gantier, Haiti); Auk., iii, 1886, 229; Birds W. I., 1889, 116; Cat. W. I. Birds, 1892, 14, 110, 131, 146 (Haiti; Santo Domingo).—CHERRIE, Field Col. Mus., Pub. 10, Orn. Ser. i, no. 1, 1896, 17 (Maniel, Santo Domingo; notes).

[*Corvus*] *solitarius* GRAY, Hand-list, ii, 1870, 13, no. 6216 (Haiti).—CORY, List Birds West Ind., 1885, 14.

Microcorax solitarius SHARPE, Cat. Birds Brit. Mus., iii, 1877, 49 (Santo Domingo).

Corvus jamaicensis (not of Gmelin) SALLÉ, Proc. Zool. Soc. Lond., 1857, 232 (Santo Domingo).—BRYANT, Proc. Bost. Soc. N. H., xi, 1886, 94 (Santo Domingo).

CORVUS MINUTUS Gundlach.

LESSEER CUBAN CROW.

Adults (sexes alike).—Similar in coloration to *C. americanus*, but very much smaller; first primary shorter than secondaries, nasal plumes

shorter and less dense (quite covering nostrils, however), and bill differently shaped, being much more compressed and more rapidly tapering to the point; length (skin), 330.5; wing, 232.5; tail, 135; culmen, 43.5; depth of bill at nostrils, 15; tarsus, 48.5; middle toe, 32.5.^a

Island of Cuba, Greater Antilles.

Corvus minutus GUNDLACH, Journ. Bost. Soc. N. H., vi, 1852, 315 (Cuba); Journ. für Orn., 1856, 97; 1874, 139; Repert. Fisico-Nat. Cuba, i, 1866, 290.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 569, footnote.—BREWER, Proc. Bost. Soc. N. H., vii, 1860, 307.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 234, footnote.—CORY, Auk, iii, 1886, 229; Birds W. I., 1889, 116; Cat. W. I. Birds, 1892, 14, 110, 129, 146 (Cuba).

[*Corvus*] *minutus* GRAY, Hand-list, ii, 1870, 13, no. 6218.—CORY, List Birds W. I., 1885, 14.

C[*orvus*] *minutus* RIDGWAY, Man. N. Am. Birds, 1887, 363.

Colaptes minutus SHARPE, Cat. Birds Brit. Mus., iii, 1877, 29, footnote.

CORVUS JAMAICENSIS Gmelin.

JAMAICAN CROW.

Adults (sexes alike).—General color uniform sooty slate, deepening into black on head; wings and tail darker sooty slate or dull slate-blackish, very faintly glossed with violet; bill, legs, and feet black; iris grayish brown.

Adult male.—Length (skin), 384; wing, 237.5; tail, 145; exposed culmen, 51; depth of bill at nostrils, 17.5; tarsus, 50; middle toe, 35.

Adult female.—Length (mounted specimen), 330.5; wing, 224; tail, 136; exposed culmen, 46; depth of bill at nostrils, 17.5; tarsus, 48; middle toe, 32.5.

Island of Jamaica, Greater Antilles.

Corvus jamaicensis GMELIN, Syst. Nat., i, 1788, 367 (based on *Chattering Crow* Latham, Gen. Synop. Birds, i, 377).—LATHAM, Index Orn., i, 1790, 154.

Corvus jamaicensis GOSSE, Birds Jamaica, 1847, 209; Illustr. Birds Jam., 1849, pl. 52.—DENNY, Proc. Zool. Soc. Lond., 1847, 38.—ALBRECHT, Journ. für Orn., 1862, 202.—SCLATER, Cat. Am. Birds, 1862, 146.—MARCH, Proc. Ac. Nat. Sci. Phila., 1863, 300.—CORY, Auk, iii, 1886, 228; Birds W. I., 1889, 115; Cat. W. I. Birds, 1892, 14, 109, 130 (Jamaica).—SCOTT, Auk, x, 1893, 178.

[*Corvus*] *jamaicensis* GRAY, Hand-list, ii, 1870, 13, no. 6215.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 40.—CORY, List Birds W. I., 1885, 14.

C[*orvus*] *jamaicensis* BONAPARTE, Consp. Av., i, 1850, 385.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 234.—NEWTON (A. and E.) Handb. Jam., 1881, 103.

Corone jamaicensis BOUCARD, Catalogus Avium, 1876, 282, no. 8854.

Microcorax jamaicensis SHARPE, Cat. Birds Brit. Mus., iii, 1877, 48.

[*Corvus*] *nasicus* (not of Temminck) GRAY, Hand-list, ii, 1870, 13, no. 6217 (fide Sharpe).

^aThe single specimen examined is in worn plumage, so that the color characters can not be satisfactorily made out. In coloration it is of a duller black than most specimens of *C. americanus*; but Mr. Cory describes the species as "glossy black, showing purple reflections," etc. The measurements given by Mr. Cory are larger than the above, being as follows: "Length (skin), 15 [= 381 mm.]; wing, 10.35 [362 mm.]; tail, 6 [162.4 mm.]; tarsus, 2 [50.8 mm.]; bill, 1.80 [45.7 mm.]."

CORVUS NASICUS Temminck.

CUBAN CROW.

Adults (sexes alike).—Entirely black, the plumage with a dull violet gloss; feathers of head, neck, and body gray basally; rictal and post-ocular regions naked; nasal plumes short, inclined upward terminally, exposing the nostrils; bill black, becoming paler (more or less horn-colored) terminally; iris brown; legs and feet black.

Adult male.—Length (mounted specimen and skin), 406.5–419.5 (413); wing, 284.5–286 (285); tail, 165.5–174 (169.5); exposed culmen, 58–58.5 (58); depth of bill at nostrils, 21–21.5 (21); tarsus, 53.5–58 (55); middle toe, 38.5–40.5 (39.5).

Adult female.—Length (mounted specimen), 406.5; wing, 279.5; tail, 165.5; exposed culmen, 58; depth of bill at nostrils, 20; tarsus, 53.5; middle toe, 37.5.

Island of Cuba, Greater Antilles.

Corvus nasicus TEMMINCK, Pl. Col., ii, 1838, pl. 413 (type in coll. Leyden Mus.).—BREWER, Proc. Bost. Soc. N. H., vii, 1860, 307.—GUNDLACH, Repert. Fisico-Nat. Cuba, i, 1866, 290; Journ. für Orn., 1874, 137.—CORY, Auk, iii, 1886, 229; Birds W. I., 1889, 116; Cat. W. I. Birds, 1892, 14, 110, 146 (Cuba; Isle of Pines; Grand Caicos, Bahamas).—CHAPMAN, Bull. Am. Mus. Nat. Hist., iv, 1892, 303 (San Pablo, Cuba; notes).

[Corvus] nasicus WAGLER, Isis, 1829, 749.—GRAY, Gen. Birds, ii, 1849, 315.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 234.—RIDGWAY, Man. N. Am. Birds, 1887, 363.

[Corvus] nasicus CORY, List Birds W. I., 1885, 14.

Microcorax nasicus SHARPE, Cat. Birds Brit. Mus., iii, 1877, 49 (Cuba).

Corvus americanus (not of Audubon) LEMBKEY, Aves de la Isla de Cuba, 1850, 63.

[Corvus] americanus CABANIS, Mus. Hein., i, 1851, 231, excl. syn. (Cuba).

Corvus jamaicensis (not of Gmelin) GUNDLACH, Journ. für Orn., vi, 1853, 316 (Cuba); 1859, 296 (do.); 1861, 414 (do.).—CABANIS, Journ. für Orn., 1856, 11 (Cuba).—THIENEMAN, Journ. für Orn., 1857, 152 (Cuba).

Corvus ossifragus (not of Wilson) SCHLEGEL, Mus. Pays-Bas, Coraces, 1867, 32, excl. syn. part (Cuba).

CORVUS LEUCOGNAPHALUS LEUCOGNAPHALUS Daudin.

PORTO RICAN CROW.

Adults (sexes alike).—Entire plumage black, the wings and tail with a violet gloss; feathers of the neck and body pure white at base, this white occupying the basal half or more of the feathers of the hind-neck, upper back, breast, sides, abdomen, and flanks; bill, legs, and feet black; iris red?; length (skins), 439.5–457.5 (447.5); wing, 300–321.5 (308.5); tail, 189.5–203.5 (195); exposed culmen, 53.5–58 (55); depth of bill at nostrils, 19–22.5 (21.5); tarsus, 51.5–55.5 (53.5); middle toe, 38.5–40.5 (40).^a

^a Three specimens.

Island of Porto Rico, Greater Antilles.

- Corvus leucognaphalus* DAUDIN, *Traité d'Orn.*, ii, 1800, 231 (Porto Rico; coll. Paris Mus.).—SCHLEGEL, *Bijdr. Dierk. Amsterd.*, ii, 1859, pl. 1, fig. 28; Mus. Pays-Bas, *Coraces*, 1867, 32.—TAYLOR, *Ibis*, 1864, 168 (Porto Rico).—SUNDEVALL, *Öfv. k. Vet. Ak. Förh. Stockh.*, 1869, 598 (Porto Rico).—GUNDLACH, *Anal. Soc. Esp. Hist. Nat.*, vii, 1878, 214 (Porto Rico).—CORY, *Auk*, iii, 1886, 227, part (Porto Rico); *Birds W. I.*, 1889, 114, part (do.); *Cat. W. I. Birds*, 1892, 109, part (do.).
- C[orvus] leucognaphalus* GRAY, *Gen. Birds*, ii, 1849, 315.—BAIRD, BREWER, and RIDGWAY, *Hist. N. Am. Birds*, ii, 1874, 234 (Porto Rico).
- Corvus leucognaphilus* CORY, *Cat. W. I. Birds*, 1892, 14, 145, part (Porto Rico).
- Corone leucognaphalus* BOUCARD, *Catalogus Avium*, 1876, 282, no. 8855 (Porto Rico).
- Microcorax leucognaphalus* SHARPE, *Cat. Birds Brit. Mus.*, iii, 1877, 49, part (Porto Rico).
- [*Corvus*] *leucognaphalus* GRAY, *Hand-list*, ii, 1870, 13, no. 6220.—SCLATER and SALVIN, *Nom. Av. Neotr.*, 1873, 40, part (Porto Rico).—CORY, *List Birds W. I.*, 1885, 14, part (Porto Rico).

CORVUS LEUCOGNAPHALUS ERYTHROPHthalmus (Württemberg).

HAITIAN CROW.

Similar to *C. leucognaphalus*, but smaller (except bill), with larger feet; plumage of head, neck, and body distinctly glossed with bluish; iris varying from light reddish brown to bright orange-red.^a

Adult male.—Length (skins), 413–442 (427.5); wing, 293.5–302 (297.5); tail, 178.5–186.5 (182.5); exposed culmen (one specimen), 53.5; depth of bill at base, 20–22.5 (21.5); tarsus, 56–58 (57); middle toe, 43.5–44 (43.5).^b

Island of Haiti, Greater Antilles.

- Corvus erythrophthalmus* PAUL VON WÜRTEMBERG, *Erste Reise Nordlicßen Amerika*, 1835, 68, footnote (Santo Domingo).—HARTLAUB, *Naumannia*, 1852, 54.—BONAPARTE, *Compt. Rend.*, xxxvii, 1853, 829.
- [*Corvus*] *erythrophthalmus* GRAY, *Hand-list*, ii, 1870, 13, no. 6221.
- Corvus leucognaphalus* (not of Daudin) SALLÉ, *Proc. Zool. Soc. Lond.*, 1857, 232 (Santo Domingo).—BRYANT, *Proc. Bost. Soc. N. H.*, xi, 1866, 94 (Haiti).—SCHLEGEL, *Mus. Pays-Bas, Coraces*, 1867, 32 (Santo Domingo).—CORY, *Bull. Nutt. Orn. Club*, vi, 1881, 153 (Haiti); *Birds Haiti and San Dom.*, 1885, 74 (Gantier, Haiti; Almercen, Santo Domingo); *Auk*, iii, 1886, 228, part (Santo Domingo); *Birds W. I.*, 1889, 114, part (do.); *Cat. W. I. Birds*, 1892, 109, part (Santo Domingo).—STONE, *Proc. Ac. Nat. Sci. Phila.*, 1891, 446 (Santo Domingo).—CHERRIE, *Field Col. Mus., Pub. 10, Orn. Ser.*, i, no. 1, 1896, 17 (Santo Domingo; habits).
- Corvus leucognaphalus*? CORY, *Bull. Nutt. Orn. Club*, vi, 1881, 153 (Haiti).
- [*Corvus*] *leucognaphalus* SCLATER and SALVIN, *Nom. Av. Neotr.*, 1873, 40, part (Haiti).—CORY, *List Birds W. I.*, 1885, 14, part (Haiti).
- Corvus leucognaphilus* CORY, *Cat. W. I. Birds*, 1892, 14, 145, part (Santo Domingo).
- Microcorax leucognaphalus* SHARPE, *Cat. Birds Brit. Mus.*, iii, 1877, 49, part.
- [*Corvus*] *dominicensis* CORY, *Auk*, iii, no. 2, Apr., 1886, 228, in text (Santo Domingo; coll. C. B. Cory).

^a According to Cherrie.^b Two specimens.

Genus NUCIFRAGA Brisson.

Nucifraga BRISSON, Orn., ii, 1760, 58. (Type, *Corvus caryocalactes* Linnaeus.)

Caryocalactes CUVIER, Règne Anim., i, 1817, 399. (Type, *Corvus caryocalactes* Linnaeus.)

Picicorvus BONAPARTE, Consp. Av., i, May 6, 1850, 384. (Type, *Corvus columbianus* Wilson.)

Small Corvinæ (wing less than 200 mm.) with under tail-coverts and part of rectrices white, the body uniform gray, or else brown spotted or streaked with white.

Bill about as long as head (or a little longer or shorter), very variable as to relative length and thickness, the basal depth from one-third to nearly one-half the length of exposed culmen; basal width of mandible (at malar antiæ) about equal to basal depth, but anterior to nostril the bill decidedly compressed; culmen varying from nearly straight to decidedly convex; gonys also variable, sometimes decidedly convex and ascending terminally, sometimes with terminal portion slightly concave; commissure nearly straight or slightly arched. Nostril circular, hidden by well-developed antrorse tufts. Rictal bristles distinct. Wing long, the tip well produced (equal to more than one-fourth to nearly one-third the length of wing), rounded; tenth primary much shorter than secondaries, not more (usually less) than one-half as long as ninth; seventh, seventh and sixth, or sixth primaries longest; inner webs of five outer primaries more or less distinctly sinuated. Tail about three-fifths to two-thirds as long as wing, more or less rounded. Tarsus usually shorter than exposed culmen (slightly longer in *N. hemispila*); middle toe, with claw, decidedly shorter than tarsus; lateral toes with claws reaching decidedly beyond base of middle claw; hallux about as long as lateral toes, much stouter, its claw nearly as long as digit.

Coloration.—Under tail-coverts and more or less of lateral rectrices white; wings black, with or without white markings; head, neck, and body brown, streaked or spotted with white, or else plain gray, becoming white on anterior portion of head.

Nidification.—Nest in coniferous trees, bulky, open above, composed of dry twigs, strips of thin bark, pine needles, etc. Eggs usually 3, pale greenish, more or less speckled or spotted with brown, gray, etc.

Range.—Boreal coniferous forests of the Palearctic and western portions of Nearctic Regions. (Four species, only one in America.)

KEY TO THE SPECIES OF NUCIFRAGA.

a. General color brown, more or less streaked or spotted with white; secondaries not broadly (if at all) tipped with white; lateral rectrices extensively black at base.

(*Palearctic species*)

aa. General color plain brownish gray; secondaries broadly tipped with white; lateral rectrices white for entire length. (Western North America.)

Nucifraga columbiana (p. 281)

NUCIFRAGA COLUMBIANA (Wilson).

CLARKE'S NUTCRACKER.

Adults (sexes alike) in winter.—Nasal tufts, anterior portion of forehead, lores, eyelids, anterior portion of malar region, and chin, white, usually more or less soiled or tinged with dirty yellowish; rest of head, neck, back, scapulars, and under parts (except chin and under tail coverts), plain smoke gray or drab-gray, the head somewhat paler than other portions; rump darker gray than back, deepening into grayish black on upper tail-coverts; under tail-coverts pure white; wings and two middle rectrices black, glossed with purplish blue or violet, especially on wing-coverts and secondaries, the latter (but not the tertials) very broadly tipped with white; four outermost pairs of rectrices white, the fifth pair with outer web mostly white and inner web mostly black; bill, legs, and feet black; iris brown.

Adults in summer.—Similar to winter adults but the gray paler and browner (light brownish drab-gray).

Young.—Similar to summer adults, but gray rather paler (that of the head fading gradually into the white of anterior portions), lesser wing-coverts dusky grayish brown, middle, greater, and primary coverts indistinctly tipped with the same, and black of wings and tail duller.

Adult male.—Length (skins), 292.5–315 (302.5); wing, 190.5–198.5 (194.5); tail, 114–118.5 (116.5); exposed culmen, 37.5–45.5 (42); depth of bill at tip of nasal tufts, 11.5–12.5 (12); tarsus, 35–38 (36.5); middle toe, 23–25 (23.5).^a

Adult female.—Length (skins), 279.5–297.5 (289); wing, 187.5–192.5 (189.5); tail, 111–118.5 (114); exposed culmen, 37–39.5 (38); depth of bill at end of nasal tufts, 10.5–11.5 (11); tarsus, 32.5–36 (35); middle toe, 20.5–25 (22.5).^a

Coniferous forests of western North America, from high mountains of New Mexico, Arizona (San Francisco and White Mountains), and northern Lower California (San Pedro Martir Mountains) to north-western Alaska (Kowak River, Bristol Bay, etc.). (Western forest districts of Boreal Province and Boreal "islands" within arid division of Transition and Upper Austral life-zones.) Casual in southeastern South Dakota, Nebraska, western Kansas (Finney and Marshall counties), western Missouri (Kansas City), and Arkansas (Crittenden County).

Corvus columbianus WILSON, Am. Orn., iii, 1811, 29, pl. 20, fig. 3 (Columbia R.).—BONAPARTE, Journ. Ac. Nat. Sci. Phila., iii, 1824, 359; Ann. Lyc. N. Y., iii, 1828, 57.—NUTTALL, Man. Orn. U. S. and Can., i, 1832, 218.

Nucifraga columbiana AUDUBON, Orn. Biog., iv, 1838, 459, pl. 362; Synopsis, 1839, 156; Birds Am., oct. ed., iv, 1842, 127, pl. 235.—BONAPARTE, Geog. and

^aSix specimens.

- Comp. List, 1838, 28.—NUTTALL, Man. Orn. U. S. and Can., 2d ed., i, 1840, 251.—MCCALL, Proc. Ac. Nat. Sci. Phila., 1851, 217 (Santa Fé and Taos Mts., New Mexico).—SHARPE, Cat. Birds Brit. Mus., iii, 1877, 56 (Black Hills, Dakota; Vancouver I.; Colorado, etc.).—RICHMOND and KNOWLTON, Auk, xi, 1894, 305 (Mystic Lake, etc., Montana).—BENDIRE, Life Hist. N. Am. Birds, pt. 2, 1895, 418, pl. 3, figs. 22, 23 (eggs).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 2d ed., 1895, no. 491.—NEHRLING, Our Native Birds, etc., ii, 1896, 312.—MITCHELL, Auk, xv, 1898, 309 (San Miguel Co., New Mexico, 9,000 ft. to timber line).—GRINNELL (J.), Pasadena Acad. Sci., pub. ii, 1898, 32 (Los Angeles Co., California, above 6,000 ft.).—BRUNER, Rep. Nebr. Hort. Soc. for 1896 (1898), 123 (Sidney; Pine Ridge; Fort Kearney; North Platte, abt. winter 1895-96).—MERRIAM, North Am. Fauna, no. 16, 1899, 119, fig. (Mount Shasta, California; habits).—PARKER (W. H.), Condor, ii, 1900, 115 (Wasatch Mts., Utah; descr. nest and eggs).—JOHNSON (H. C.), Condor, iv, 1902, 87 (Wasatch Mts.; descr. nest and eggs).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 282, fig. 349.
- [*Nucifraga columbiana* GRAY, Hand-list, ii, 1870, 9, no. 6165.
- N[ucifraga] columbiana* RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 312.
- Nucifraga columbianus* JOHNSON (H. C.), Condor, ii, 1900, 49-52 (Wasatch Mts., Utah; breeding habits; descr. nest and eggs).
- [*Picicorvus*] *columbianus* BONAPARTE, Consp. Av., i, 1850, 384.—COUES, key N. Am. Birds, 1872, 163.
- Picicorvus columbianus* NEWBERRY, Rep. Pacific R. R. Surv., x, pt. iv, 1857, 83 (Cascade Mts., Sierra Nevada, etc.; habits).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 573, 925; Cat. N. Am. Birds, 1859, no. 430.—XANTUS, Proc. Ac. Nat. Sci. Phila., 1859, 192 (Fort Tejon, California).—HENRY, Proc. Ac. Nat. Sci. Phila., 1859, 108 (New Mexico).—KENNERLY, Rep. Pacific R. R. Surv., x, pt. vi, 1859, 32 (75 miles w. Albuquerque, New Mexico).—COOPER and STICKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 212 (Washington, e. of Cascades; Fort Laramie, Wyoming; Fort Kearney and Milk R., Nebraska).—COUES, Proc. Ac. Nat. Sci. Phila., 1866, 91 (Fort Whipple, Arizona, Oct. to Mar.; crit.); Ibis, 1872, 52 (biography); Check List, 1873, no. 230; 2d ed., 1882, no. 344; Birds N. W., 1874, 207.—LORD, Proc. Roy. Art. Inst. Woolw., iv, 1864, 121 (Vancouver I.; Fort Colville, Washington; etc.).—DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 286 (Sitka, Alaska).—COOPER, Orn. Cal., 1870, 289.—STEVENSON, Prelim. Rep. U. S. Geol. Surv., 1870, 465 (Colorado).—HOLDEN and AIKEN, Proc. Bost. Soc. N. H., 1872, 203 (Wyoming).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 255, pl. 38, fig. 4.—YARROW and HENSHAW, Rep. Orn. Spec. Wheeler's Survey, 1872 (1874), 20 (Otter Creek, Utah; habits).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv. 1873 (1874), 83 (Fort Garland and Rio Grande, Colorado; measurements, etc.), 122 (White Mts., Arizona); 1876, 252 (Tejon Mts., California); Zool. Exp. W. 100th Merid., 1875, 328 (Nevada; near Fort Garland, Rio Grande, Rio Blanco, and Huerfano R., Colorado; White Mts., Arizona; habits); Auk, iii, 1886, 75 (upper Pecos R., New Mexico, breeding in mts.).—BENDIRE, Bull. Nutt. Orn. Club, i, 1876, 44 (breeding habits; descr. nest and eggs); Proc. Bost. Soc. Nat. Hist., xviii, 189, 159 (Camp Harney, Oregon; descr. nest and eggs); Orn. and Ool., vii, 1882, 105-107, 113-114 (breeding habits, etc.); Auk, vi, 1889, 226 (breeding habits, etc.); vii, 1890, 92 (Boulder Co., Colorado; descr. nest and eggs).—RIDGWAY, Orn. 40th Parallel, 1877, 515 (Sierra Nevada, East Humboldt, and Wahatch mountains; habits), Nom. N. Am. Birds, 1881, no. 284; Auk, iv, 1887, 255 (Nushagak, Alaska), 256 (Kowak R., Alaska).—DREW, Bull. Nutt. Orn. Club, vi, 1881, 139 (San Juan Co., Colorado, breeding at 6,500 to 13,000

ft.; notes).—Goss, Bull. Nutt. Orn. Club, viii, 1883, 44–45 (Sangre de Cristo Mts., Colorado; breeding habits); Auk, vi, 1889, 123 (Marshall Co., w. Kansas, 1 spec., Aug. 13; Fort Kearney, Nebraska); Hist. Birds, Kansas, 1891, 386 (Marshall Co.).—BATCHELDER, Auk, i, 1884, 17 (descr. young).—AGERSBORG, Auk, ii, 1885, 232 (s. e. Dakota, 2 specs., Oct., 1883).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 491.—TOWNSEND, Proc. U. S. Nat. Mus., x, 1887, 212 (Mount Shasta, etc., n. California; habits).—NELSON, Nat. Hist. Coll. Alaska, 1887, 168 (Sitka).—COOKE, Bird Migr. Miss. Val., 1883, 159 (Vermilion Co., Dakota, 1 spec., Oct.; Nebraska).—MEARNS, Auk, vii, 1890, 257 (San Francisco Mts., Arizona, breeding in pine and spruce belts; Mogollon Mts., Oct.; habits).—MERRIAM, N. Am. Fauna, no. 3, 1890, 94 (San Francisco Mts., Arizona).—ANTHONY, Zoe, iv, 1893, 239 (San Pedro Martir Mts., Lower California).—KELLOGG, Auk, xi, 1894, 260 (Finney Co., w. Kansas, 3 specs., Oct. 10).—MITCHELL, Auk, xi, 1894, 327 (Crittenden Co., Arkansas, Apr. 1, 1891).—BRYANT (J. A.), Auk, xii, 1895, 82 (near Kansas City, Missouri, 1 spec., Oct. 28, 1894).
P[icicorvus] columbianus COUES, Key N. Am. Birds, 2d ed., 1884, 418.—RIDGWAY, Man. N. Am. Birds, 1887, 364.
Corvus megalonyx WAGLER, Syst. Av., 1827, *Corvus*, sp. 20.

Genus CYANOCEPHALUS Bonaparte.

Gymnorhinus (not *Gymnorhina* Gray, 1840) MAXIMILIAN, Reise Nord. Amer., ii, 1841, 21. (Type, *G. cyanocephalus* Maximilian.)
Cyanocephalus BONAPARTE, Oss. Stat. Zool. Eur. Vert., 1842, 17. (Type, *Gymnorhinus cyanocephalus* Maximilian.) (See Salvin, Ibis, 1873, 103.)
Gymnokitta BONAPARTE, Consp. Av., i, 1850, 382. (Type, *Gymnorhinus cyanocephalus* Maximilian.)
Gymnocitta (emendation) COUES, Bull. Nutt. Orn. Club, v, 1880, 98.

Small Corvinæ (wing less than 160 mm.) with wholly exposed and slightly operculate nostrils, flattened mesorhinium, and uniform bluish gray or grayish blue plumage.

Bill about as long as head, elongate subcuneate, nearly as broad as deep, with nearly straight outlines, its depth at base less than one-third the length of exposed culmen, its basal width about the same; culmen straight to near tip, which is slightly decurved, the tip rather broad, the mesorhinium broad and flattened; gonys slightly convex; commissure straight to near base, where slightly deflected to the rictus. Nostril wholly exposed, longitudinal, more or less oval, but nearly straight on upper edge, where a slightly developed operculum is more or less evident. Rictal bristles distinct but small. Wing long, its tip well produced (longer than exposed culmen) and rounded; tenth primary shorter than secondaries, but more than half as long as longest primary; eighth and seventh primaries longest, the sixth a little shorter; inner webs of four or five outer primaries slightly sinuated. Tail more than two-thirds as long as wing, even or very slightly rounded. Tarsus about equal to exposed culmen or slightly longer; middle toe, with claw, decidedly shorter than tarsus; outer toe, with claw, reaching to or very slightly beyond base of middle claw, the

inner toe a little shorter; hallux about as long as lateral toes, much stouter, its claw shorter than the digit and strongly curved.

Coloration.—Uniform bluish gray or grayish blue (more decidedly blue on head), the throat streaked with white.

Nidification.—Nest essentially similar in form and composition to that of *Nucifraga*, but in open piñon woods of arid districts, instead of moister pine and fir forests. Eggs similar to those of *Nucifraga*.

Range.—Western United States, in mountains. (Monotypic.)

CYANOCEPHALUS CYANOCEPHALUS (Maximilian).

PIÑON JAY.

Adult male.—General color uniform dull grayish blue, paler on posterior under parts, deepening on pileum, hindneck and auricular region into a much darker and more purplish blue, the malar and sub-orbital regions brighter blue (almost azure blue); chin, throat, and median portion of chest broadly streaked with grayish white; anal region very pale bluish gray or grayish white; bill, legs, and feet black; iris brown.

Adult female.—Similar to the adult male, but averaging decidedly smaller and usually much duller in color, the prevailing color bluish gray rather than grayish blue.

Young.—Similar to the adult female, but still duller, without any blue except on wings and tail; color of pileum, hindneck, back, etc., plain gray, darker on the first; under parts entirely uniform pale gray, becoming grayish white on anal region.

Adult male.—Length (skins), 259–287.5 (272.5); wing, 148–159.5 (154); tail, 104–116.5 (114); exposed culmen, 33.5–37.5 (36); depth of bill at nostrils, 9–10 (9.5); tarsus, 37.5–38.5 (38); middle toe, 22.5–23 (23).^a

Adult female.—Length (skins), 244–267 (254.5); wing, 142–147 (144.5); tail, 101–108 (104); exposed culmen, 31–32.5 (31.5); depth of bill at nostrils 8; tarsus, 34–36.5 (35.5); middle toe, 18–20.5 (19.5).^b

Piñon and juniper woods of western United States; north to southern British Columbia (interior), Idaho, etc., south to northern Lower California (San Pedro Martir Mountains), Arizona, New Mexico, and western Texas; east to eastern side of Rocky Mountains, in winter (sometimes regularly) to Nebraska (Long Pine, Cherry County, Sioux County, Fullerton, Nance County, near Fort Robinson, etc.), casually to eastern Kansas (Lawrence).

Gymnorhinus cyanocephalus MAXIMILIAN, Reise in Nord-amerika, ii, 1841, 21 (upper Missouri River).

[*Gymnokitta*] *cyanocephalus* BONAPARTE, Consp. Av., i, 1850, 382.—COUES, Key N. Am. Birds, 1872, 163.

^a Five specimens.

^b Four specimens.

- Gymnokitta cyanocephala* BAIRD, Stansbury's Rep. Gt. Salt Lake, 1852, 332 (Rocky Mts.); Rep. Pacific R. R. Surv., ix, 1858, 574; Cat. N. Am. Birds, 1859, no. 431.—CASSIN, Illustr. Birds Cal., Tex., etc., 1854, 165, pl. 28.—KENNERLY, Rep. Pacific R. R. Surv., iv, pt. vi, 1856, 10 (95 miles w. Albuquerque, New Mexico); x, pt. iv, 1859, 32 (do.; habits).—NEWBERRY, Rep. Pacific R. R. Surv., x, pt. vi, 1857, 83 (Des Chutes Basin, e. Oregon; habits).—HENRY, Proc. Ac. Nat. Sci. Phila., 1859, 108 (New Mexico).—FEILNER, Ann. Rep. Smithsonian Inst. for 1864 (1865), 427 (Fort Tejon and Fort Crook, California; habits).—COUES, Proc. Ac. Nat. Sci. Phila., 1866, 91 (Fort Whipple, Arizona, resid.; habits); Ibis, 1872, 152 (biogr.); Check List, 1873, no. 231; Birds N. W., 1874, 209.—COOPER, Orn. Cal., 1870, 292 (more barren districts of Sierra Nevada).—AIKEN, Proc. Bost. Soc. N. H., xv, 1872, 204 (Wyoming).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 260, pl. 38, fig. 2.—YARROW and HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1872 (1874), 21 (Nevada; Utah).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 84 (Fort Garland, Colorado; habits), 122 (Silver City, Tularosa Lake, and Fort Wingate, New Mexico; habits); Zool. Exp. W. 100th Merid., 1875, 331 (Nevada; locs. in Utah, Colorado, and New Mexico; habits); Bull. Nutt. Orn. Club, iii, 1878, 112 (habits; descr. nest and eggs).—SNOW, Birds Kansas, 3d ed., 1875, 8 (near Lawrence, e. Kansas, 6 or 7, Oct. 23, 1875).—RIDGWAY, Bull. Essex Inst., vii, 1875, 24 (City of Rocks, s. Idaho, Oct.); Orn. 40th Parallel, 1877, 517 (pifton and cedar woods, Sierra Nevada to Wasatch Mts.; habits, descr. nest, etc.).—BENDIRE, Proc. Bost. Soc. N. H., xviii, 1877, 156 (Camp Harney, e. Oregon; descr. nest and eggs).—SHARPE, Cat. Birds Brit. Mus., iii, 1877, 138.—DREW, Bull. Nutt. Orn. Club, vi, 1881, 139 (San Juan Co., Colorado, 7,000 to 13,000 ft.).—GOSS, Bull. Nutt. Orn. Club, viii, 1883, 43 (Sangre de Cristo Mts., Colorado; breeding habits).
- G[y]mnokitta cyanocephala* MAXIMILIAN, Journ. für Orn., 1858, 193 (descr., etc.).—HENSHAW, Orn. Rep. Wheeler's Surv., 1879, 306 (Des Chutes Basin, etc., e. Oregon; habits; desc. nest and eggs).
- Gymnocitta cyanocephala* COUES, Ibis, Apr., 1865, 165, in text (Fort Whipple, Arizona); Bull. Nutt. Orn. Club, v, Apr., 1880, 98; Check List, 2d ed., 1882, no. 345.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 285.
- G[y]mnocitta cyanocephala* COUES, Key N. Am. Birds, 2d ed., 1884, 418.
- P[s]ilorhynchus cyanocephalus* GRAY, Gen. Birds, iii, 1849, App., p. 14.
- [Nucifraga] cyanocephala* GRAY, Hand-list, ii, 1870, 10, no. 6166.
- Cyanocephalus cyanocephalus* STEJNEGER, Auk, i, July, 1884, 230.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 492.—TOWNSEND, Proc. U. S. Nat. Mus., x, 1887, 213 (Fort Crook, n. California).—SCOTT, Auk, iv, 1887, 21 (Santa Catalina Mts., s. Arizona, 3,000 to 4,000 ft., Sept. to Nov.; habits).—COOKE, Bird Migr. Miss. Val., 1888, 159 (Lawrence, Kansas).—BELDING, Land Birds Pacific Distr., 1890, 116 (localities in California, Oregon, and Nevada).—MEARNS, Auk, vii, 1890, 257 (Mogollon and San Francisco Mountains, Arizona; habits).—MERRIAM, N. Am. Fauna, no. 3, 1890, 94 (San Francisco Mts., Arizona).—GOSS, Hist. Birds Kansas, 1891, 388 (Lawrence, Oct., 1875).—ANTHONY, Zoe, iv, 1893, 239 (San Pedro Martir Mts., Lower California, abt. in May).—KELLOGG, Auk, xi, 1894, 260 (Finney Co., w. Kansas, winter resid. up to 1891).—BENDIRE, Life Hist. N. Am. Birds, ii, 1895, 424, pl. 3, figs. 24, 25 (eggs).—NEHRING, Our Native Birds, etc., ii, 1896, 344.—GRINNELL (J.), Pasadena Ac. Sci., Pub. ii, 1898, 32 (Los Angeles Co., California; irreg. visit.).—MAILLARD, Auk, xv, 1898, 198 (Pacific Grove, Monterey Co., California, Dec., 1895).—MITCHELL, Auk, xv, 1898, 309 (San Miguel Co., New Mexico, 8,000 ft. upward).—BRUNER, Rep. Nebr. Hort. Soc. for 1896 (1898), 124 (Pine Ridge near Fort Robinson, etc.).—MER-

- RIAM, North Am. Fauna, no. 16, 1899, 121 (Shasta Valley, etc., n. California, Sept. 28).—BATES, Proc. Nebr. Orn. Un., sec. ann. meeting, 1901, 74 (Long Pine and Kennedy, n. w. Nebraska, Sept. to Nov.; numerous).—CARY, Auk, xviii, 1901, 235 (Black Hills, Wyoming, breeding; habits).—OBERHOLSER, Auk, xix, 1902, 300 (Guadalupe Mts., w. Texas).—JOHNSON (H. C.), Condor, iv, 1902, 14 (American Fork, Utah; habits).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 284.
- C[cyanocephalus] cyanocephalus* RIDGWAY, Man. N. Am. Birds, 1887, 364.
- Cyanocephalus wiedi* BONAPARTE, Obs. Stat. Zool. Eur. Vertebr., 1840-41 (1842) (See Salvin, Ibis, 1873, 103).
- Cyanocorax cassini* McCALL, Proc. Ac. Nat. Sci. Phila., v, June, 1851, 216 (Santa Fé, New Mexico).
- Cyanocorax cassinii* BAIRD, Stansbury's Rep. Gt. Salt Lake, 1852, 332 (Santa Fé).

Genus *PICA* Brisson.

- Pica* BRISSON, Orn., ii, 1760, 35. (Type, *Corvus pica* Linnaeus.)
- Cleptes*^a GAMBEL, Journ. Ac. Nat. Sci. Phila., 2d ser., i, Dec. 1847, 46. (Type, *Corvus hudsonius* Sabine.)

Large long-tailed Garrulinæ with tenth (outermost) primary falcate, the head without any crest, and the plumage black and white in large, conspicuously contrasted areas.^b

Tail very long, forming much more than half the total length, excessively graduated (lateral rectrices but little if any more than half as long as middle pair), outermost primary narrow, falcate, about half as long as ninth primary; bill rather stout (depth at nostrils more than half the distance from nostrils to tip of maxilla), its width at base of nasal plumes a little greater than its depth at the same point; nasal plumes well developed, covering nearly basal half of maxilla; tarsus slender, about twice as long as distance from nostril to tip of maxilla; middle toe (without claw) a little more than half as long as tarsus.

Coloration.—Wings metallic greenish blue, varied with greenish or violet (sometimes both), the inner webs of primaries chiefly white; tail rich metallic green varied with bronze, purple, and violet near end; scapulars, belly, sides, and flanks, pure white; other parts blackish.

Nidification.—Nest in trees; nest proper more or less completely inclosed within an open "lattice-work" of large dead twigs. Eggs 7-10, dull grayish white or pale grayish (sometimes slightly greenish), densely speckled with grayish brown or olive.

Range.—Palearctic Region and western portion of Nearctic Region.

The genus *Pica* is most nearly related to the Palearctic genus *Cyanopolius* Bonaparte,^c but differs conspicuously in the falcate first pri-

^a "κλέπτης, a thief."

^b Whence the term "pied."

^c *Cyanopolius* Bonaparte, Rep. Brit. Assoc. Adv. Sci., 1849, 75. (Type, *C. cooki* Bonaparte.)—*Cyanopica* Bonaparte, Proc. Zool. Soc. Lond., 1850, 86. (Type, *C. vaillanti* Bonaparte, = *Corvus cyaneus* Pallas.)—*Dolometis* Cabanis, Mus. Hein., i, Oct., 1851, 222. (Type, *Corvus cyaneus* Pallas.)

mary and style of coloration; *Cyanopoli* having only the pileum, sides of head, and hindneck black, the under parts being whitish or pale vinaceous-gray, the back, scapulars, and rump light gray or vinaceous-gray, the wings and tail light grayish blue.

The only other American genus of jays with a very long and graduated tail is *Calocitta*, of Mexico and Central America, which has uncovered nostrils, a conspicuous recurved crest, and the plumage chiefly blue.

KEY TO THE SPECIES OF PICA.

- a. Bill and naked orbital space black. (Western North America in general.)
Pica pica hudsonia (p. 287)
 aa. Bill and naked orbital space yellow. (California.).....*Pica nuttalli* (p. 291)

PICA PICA HUDSONIA (Sabine).

AMERICAN MAGPIE.

Similar to *P. p. pica*,^a but averaging decidedly larger; feathers of throat with setaceous shafts less developed, and with more or less concealed white spotting; white spot on inner web of first (innermost) primary averaging much smaller, rarely, if ever, occupying the edge of the web; secondaries averaging more greenish blue.

Adults (sexes alike).—Head, neck, chest, upper breast, back, lesser wing-coverts, lower rump, upper and under tail-coverts, anal region, thighs, lower abdomen, and under wing-coverts, uniform black, the crown glossed with bronze or bronzy greenish, the back faintly glossed with bluish green or bluish in certain lights; scapulars, lower breast, upper abdomen, sides, and flanks, white; a broad band of grayish white across upper rump; prevailing color of middle and greater wing-coverts and secondaries metallic steel blue, varying to bronzy green; alula, primary coverts, and primaries blackish, glossed, more or less, with greenish bronze, bluish green, or steel bluish, the inner webs of the primaries mostly white; this most extensive on the longer quills, on the first restricted to a large subterminal patch or spot, usually more or less broadly margined along the edge of the web with blackish; occasionally the outermost secondary also is marked with a subterminal white spot; tail bright metallic bronzy green, passing into metallic

^a[*Corvus*] *pica* Linnaeus, Syst. Nat., ed. 10, i, 1758, 106.—*Pica pica* Sharpe, Cat. Birds Brit. Mus., iii, 1877, 62, part.—*Corvus rusticus* Scopoli, Ann., i, 1769, 38.—*Pica rustica* Dresser, Birds Europe, pt. xxii, 1873 (vol. iv, 509, pl. 260).—*Pica melanoleuca* Vieillot, Nouv. Dict. d'Hist. Nat., xxvi, 1818, 121.—*Pica albiventris* Vieillot, Faun. Franç., 1820, 119.—*Pica europæa* Boie, Isis, 1826, 551.—*Pica germanica* Brehm Vög. Deutschl., 1831, 177.—*Pica septentrionalis* Brehm, Vög. Deutschl., 1831, 178.—*Pica hiemalis* Brehm, Vög. Deutschl., 1831, 178.—*Pica caudata* Keyserling and Blasius, Wirb. Eur., 1840, 45; Gould, Birds Europe, iii, 1835?, pl. 216; Birds Gt. Brit., iii, 1873, pl. 216; Yarrell, Hist. Brit. Birds, ii, 1839, 107.—*Pica varia* Schlegel, Rev. Crit., 1844, 54; Dier. Nederl., Vög., 1861, pl. 13, figs. 7, 7a; Mus. Pays-Bas, Coraces, 1867, 390.—*Pica vulgaris* Brehm, Journ. für Orn., 1858, 173. (Europe.)

purple subterminally, the latter into darker and more bluish green for the terminal portion (extensively); inner webs of rectrices uniform blackish, slightly glossed with greenish, and outer web of outermost rectrix wholly dark bronzy greenish; bill, bare orbital space, legs, and feet black; iris brown, with a grayish outer ring (concealed by eyelids).

Young.—Similar to adults, but black of head, neck, etc., much duller, without metallic gloss; feathers of throat usually with the basal white spots much larger, often conspicuously exposed and frequently occupying, as large wedge-shaped spots, the central portion of the feathers of chest and upper breast, as well as throat; white of scapulars and sides of breast usually more or less tinged with sooty brown, especially on tips of feathers; grayish band across upper rump indistinct, sometimes obsolete; wings and tail as in adults, but metallic colors rather more brilliant; bare suborbital space much larger.

Adult male.—Length (skins), 404–493 (459.5); wing, 181.5–211.5 (203); tail, 235–302.5 (268); exposed culmen, 33–39.5 (36.5); depth of bill at nostrils, 11.5–15 (13.5); tarsus, 45–50 (48); middle toe, 23.5–28 (26).^a

Adult female.—Length (skins), 404–473.5 (440.9); wing, 190–206 (197.5); tail, 231.5–283.5 (259.5); exposed culmen, 31–36.5 (34.5); depth of bill at nostrils, 12.5–14.5 (13); tarsus, 43–48.5 (46); middle toe, 22.5–28 (25).^b

Treeless or more sparsely wooded districts of western North America, except coast and interior valleys of California; north to north-western Alaska (Kowak River, Hotham Inlet, head of Bristol Bay, Alaskan Peninsula, Shumagin Islands, Kadiak, etc.); south to south-

^aFifteen specimens.

^bTwelve specimens.

Specimens from the coast of Alaska (Kadiak, Shumagin Islands, Nushagak, etc.), apparently have decidedly shorter tails, on the average, than those from elsewhere, but with a larger series the difference may prove less marked than the following measurements seem to indicate:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at nos- tril.	Tarsus.	Middle toe.
MALES.						
Eight adult males from Western United States....	206.5	281.5	36.5	13	48.5	25.5
Seven adult males from coast of Alaska.....	200.5	258	37.5	14.5	47.5	25
FEMALES.						
Eight adult females from Western United States..	197.5	270.5	33.5	12.5	46	24
One adult female from interior of Alaska (Fort Reliance)	207	288	36	14.5	46.5	25
Four adult females from coast of Alaska.....	197.5	242.5	34	14	45.5	27

The supposed female from Fort Reliance may possibly be a male, the length of wings and tail slightly exceeding the same measurements of any other adult female in the series measured.

ern Arizona (Santa Catalina Mountains, September, November), New Mexico (San Miguel County, where breeding at 7,000 to 12,000 feet, Raton Mountains, etc.), and western Texas; east to western portion of the Great Plains, and to Lake Winnipeg; rare or casual winter visitant or straggler to southwest side of Hudson Bay (York Factory), Ontario, Michigan, northeastern Illinois, Wisconsin, Minnesota, Iowa, eastern Nebraska, etc.

Corvus pica (not of Linnæus) FORSTER, Philos. Trans., lxxii, 1772, 382 (Hudson Bay).—WILSON, Am. Orn., iv, 1811, 75, pl. 35, fig. 2.—BONAPARTE, Journ. Ac. Nat. Sci. Phila., 1823, 360, Ann. Lyc. N. Y., iii, 1828, 57.—SWAINSON and RICHARDSON, Fauna Bor.-Am., ii, 1831, 292.—NUTTALL, Man. Orn. U. S. and Can., i, 1832, 219.—AUDUBON, Orn. Biog., iv., 1838, 408, pl. 357.

Pica pica SHARPE, Cat. Birds Brit. Mus., iii, 1877, 62, part (American references and localities).

Corvus hudsonius SABINE, App. Franklin's Journ., 1823, 25, 671 (Cumberland House, Hudson Bay).

Pica hudsonica BONAPARTE, Geog. and Comp. List, 1838, 27.—MAXIMILIAN, Reise in Nord-Amerika, i, 1839, 508 (upper Missouri R.); Journ. für Orn., iv, 1856, 197 (crit.).—WOODHOUSE, in Rep. Sitgreaves' Expl. Zuni and Col. R., 1853, 77 (New Mexico).—KENNERLY, Rep. Pacific R. R. Surv., iv, pt. vi, 1857, 10 (Little Colorado R., Arizona); x, pt. 3, 1859, 32 (do.).—NEWBERRY, Rep. Pacific R. R. Surv., x, pt. iv, 1857, 84 (Mptolyas R., Oregon, Columbia R., and n. coast California).—BAIRD, Rep. Pacific R. R., Surv., ix, 1858, 576; 2d ed. 1860 (Birds N. Am.), atlas, pl. 25; x, pt. 3, no. 2, 1859, 14 (near Fort Massachusetts and Cochetope Pass, New Mexico); Cat. N. Am. Birds, 1859, no. 432.—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 213, pl. 25 (Oregon and Washington e. of Cascades; Puget Sound after breeding season).—BLAKISTON, Ibis, 1862, 8 (Forks Saskatchewan, Nov., Feb.; plains Saskatchewan; breeding).—LORD, Proc. Roy. Art. Inst. Woolwich, iv, 1864, 121 (British Columbia).—COUES, Ibis, 1865, 159, in text (Raton Mts., New Mexico); Proc. Ac. Nat. Sci. Phila., 1866, 93 (do.).—DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 286 (Sitka; Unga, Shumagin group; Kadiak).—COOPER, Orn. Cal., 1870, 296 (Vancouver I.; Fort Colville, Washington).—STEVENSON, Prelim. Rep. U. S. Geol. Surv. for 1870 (1871), 465 (Colorado).—HOLDEN and AIKEN, Proc. Bost. Soc. N. H., 1872, 204 (Wyoming).—FINSCH, Abh. Nat. Brem., iii, 1872, 39 (Alexandrovsk, Alaska).—SNOW, Birds Kansas, 1873, 8 (Shawnee Co., Kansas, Oct.).—DALL, Proc. Cal. Ac. Sci., v, 1873, 28 (Shumagins; Alaska peninsula).—MERRIAM, Rep. U. S. Geol. Surv. Terr. for 1872 (1873), 687 (Idaho; Utah).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, pl. 38, fig. 1.

[*Pica*] *hudsonicus* BONAPARTE, Conspect. Av., i, 1850, 382.

Cleptes hudsonicus GAMBEL, Journ. Ac. Nat. Sci. Phila., 2d ser., i, 1847, 46 (New Mexico).

[*Pica*] *melanoleuca* var. *hudsonica* COUES, Key N. Am. Birds, 1872, 164.

Pica melanoleuca . . . var. *hudsonica* COUES, Check List, 1873, no. 233.—YARROW and HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1872 (1874), 20 (e. Nevada; Utah).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 65 (Denver, Colorado), 84 (Fort Garland, Colorado; habits), 123 (Rio Puerco, New Mexico); Zool. Exp. W. 100th Merid., 1875, 334 (habits); Rep. Orn. Spec. Wheeler's Surv., 1877, 1309 (Carson City, Nevada).

Pica melanoleuca . . . Var. *hudsonica* SNOW, Birds Kansas, 3d ed., 1875, 8 (rare summer resid.).

- Pica melanoleuca* var. *hudsonica* COUES, Birds N. W., 1874, 211, part.—SCOTT, Bull. Nutt. Orn. Club, iv, 1879, 94 (Twin Lakes, Colorado).
- [*Pica melanoleuca* var. *hudsonica*] h. *hudsonica* COUES, Birds N. W., 1874, 211 (synonymy).
- P[ica] melanoleuca hudsonica* HENSHAW, Orn. Rep. Wheeler's Surv., 1879, 306 (Nevada; eastern California; habits).
- Pica melanoleuca hudsonica* RIDGWAY, Bull. Essex Inst., viii, Jan., 1875, 11, 15 (Carson City and Truckee Valley, Nevada).—COUES, Bull. U. S. Geol. and Geog. Surv. Terr. iii, 1877, 669 (Fort Garland, Colorado; Fort Union, New Mexico, etc.); iv, 1878, 607 (mouth of Milk R., etc., Montana).
- Pica caudata* var. *hudsonica* ALLEN, Bull. Mus. Comp. Zool., iii, July, 1872, 150 (e. Colorado), 157 (South Park), 169 (Ogden, Utah), 178 (w. Kansas; Colorado, up to 11,000 ft.; Wyoming; Utah).—RIDGWAY, Bull. Essex Inst., v, 1873, 184 (Colorado).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 266.—BENDIRE, Proc. Bost. Soc. N. H., 1877, 125 (Camp Harney, e. Oregon; habits).
- P[ica] caudata* . . . var. *hudsonica* RIDGWAY, Ann. Lyc. N. Y., x, 1874, 375 (n. Illinois, accid. in winter).
- P[ica] caudata* var. *hudsonicus* NELSON, Bull. Essex Inst., viii, 1876, 112 (n. e. Illinois, accidental).
- Pica caudata hudsonica* FINSCH, Journ. für Orn., 1883, 270 (Portage Bay, Alaska).
- Pica rustica*, var. *hudsonica* BAIRD, Orn. Simpson's Exp., 1876, 380 (Utah).
- Pica rustica*, β . *hudsonica* RIDGWAY, Field and Forest, ii, June, 1877, 206 (Colorado).
- Pica rustica* . . . β . *hudsonica* RIDGWAY, Orn. 40th Parallel, 1877, 520 (e. slope Sierra Nevada to Wahsatch Mts.; habits, etc.).
- Pica rustica hudsonica* RIDGWAY, Proc. U. S. Nat. Mus., iii, Mar. 27, 1880, 4; Nom. N. Am. Birds, 1881, no. 286.—HOFFMAN, Proc. Bost. Soc. N. H., 1882, 400 (Fort Berthold, Dakota).—COUES, Check List, 2d ed., 1882, no. 347.—NELSON, Cruise "Corwin," 1881 (1883), 73 (head of Bristol Bay, Alaska).—BECKHAM, Auk, ii, 1885, 142 (Pueblo, Colorado).—MCLENNAN, Cruise "Corwin," 1884, 116 (Kowak R. and Hotham Inlet, Alaska).—AGERSBORG, Auk, ii, 1885, 282 (s. e. South Dakota, winter).
- [*Pica pica*] ζ . *hudsonica* DUBOIS, Rev. et Mag. de Zool., 1873, 5.
- P[ica] rustica hudsonica* COUES, Key N. Am. Birds, 2d ed., 1884, 420.
- P[ica] pica* . . . var. *hudsonica* JORDAN, Man. Vertebr. E. U. S., 4th ed., 1884, 94.
- Pica pica hudsonica* RIDGWAY, Proc. U. S. Nat. Mus., viii, 1885, 355; xvi, 1893, 664 (Shumagins, Alaska); Orn. Illinois, i, 1889, 333.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 475.—ANTHONY, Auk, iii, 1886, 166 (Washington Co., n. w. Oregon, resident).—SETON, Auk, iii, 1886, 321 (w. Manitoba).—TURNER, Contr. Nat. Hist. Alaska, 1886, 166 (Fort Yukon, Fort Reliance, etc.).—NELSON, Nat. Hist. Coll. Alaska, 1887, 163 (Shumagins, Kadiak, etc.).—TOWNSEND, Proc. U. S. Nat. Mus., x, 1887, 210 (Fort Crook, n. e. California).—COOKE, Bird Migr. Misc. Val., 1888, 157 (w. Manitoba; w. Kansas; Vermilion, Dakota—formerly, in winter; w. Dakota).—BELDING, Land Birds Pacific Distr., 1890, 107 (Alpine Co., California; e. slope Sierra Nevada, up to 7,000 ft.).—FANNIN, Check List Birds Brit. Col., 1891, 2 (breeding e. of Cascades; coast in winter).—GOSS, Hist. Birds Kansas, 1892, 375 (fall and winter visit, formerly resident).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1891, 565 (Lake Winnipeg, York Factory, etc.).—MCILWRAITH, Birds Ontario, 1892, 272 (Sault Ste. Marie, rare winter visit).—FISHER (A. K.), N. Am. Fauna, no. 7, 1893, 68 (Toquerville, Utah, Dec.).—LOWE, Auk, xi, 1894, 268 (Wet Mts., Colorado).—DUNN, Auk, xii, 1895, 395 (Chicago, Illinois, 1 spec., Oct. 17, 1892).—BENDIRE, Life Hist. N. Am. Birds, ii, 1895, 349, pl. 3.

figs. 11-13 (eggs).—NEHRING, *Our Native Birds*, etc., ii, 1896, 315.—BRUNER, Rep. Nebr. Hort. Soc. for 1896 (1898), 118 (West Point; Norfolk; Harrison; Cherry County; breeding); Proc. Nebr. Orn. Union, sec. ann. meeting, 1901, 54 (Cherry and Sioux counties, n. w. Nebraska, breeding).—CLARKE, Auk, xv, 1898, 274 (Odessa, e. Ontario, 3 specs.).—MITCHELL, Auk, xv, 1898, 309 (San Miguel Co., New Mexico, breeding at 7,000 to 12,000 ft.).—MCGREGOR, Auk, xvi, 1899, 78 (Alturas, Modoc Co., n. e. California, abundant).—MERIAM, North Am. Fauna, no. 16, 1899, 118 (e. side Shasta Valley, n. California, 1 spec., Sept. 29).—BATES, Proc. Nebr. Orn. Un., sec. ann. meeting, 1901, 74 (Chadron, n. w. Nebraska, breeding).—FLEMING, Auk, xviii, 1901, 40 (Port Sydney, Ontario, 1 spec., summer, 1887).—FISHER (W. K.), Condor, iv, 1902, 11 (Mono Lake, s. e. California, Sept.).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 270, pl.

P[ica] pica hudsonica RIDGWAY, Man. N. Am. Birds, 1887, 352.

Pica melanoleuca (not of Vieillot) AUDUBON, Synopsis, 1839, 152; Birds Am., oct. ed., iv, 1842, 99, pl. 227.—CABOT, Proc. Bost. Soc. N. H., ii, 1845, 73 (Michigan; crit.).—MCCALL, Proc. Ac. Nat. Sci. Phila., 1851, 217 (w. Texas, lat. 29° 15', Nov.).

PICA NUTTALLI Audubon.

YELLOW-BILLED MAGPIE.

Similar in coloration to *P. pica hudsonia*, but bill and bare orbital skin bright yellow, and size decidedly less.^a

Adult male.—Length (skins), 381-443.5 (406.5); wing, 181.5-196.5 (187.5); tail, 229-254 (237); exposed culmen, 30.5-32.5 (31.5); depth of bill at nostrils, 12-13 (12.5); tarsus, 43.5-49.5 (47.5); middle toe, 22.5-25 (23).^b

Adult female.—Length (skins), 409-451 (423.5); wing, 182-194.5 (186.5); tail, 230.5-249.5 (239); exposed culmen, 30-31 (30.5); depth of bill at nostrils, 12; tarsus, 44.5-50 (48); middle toe, 22.5-26.5 (23.5).^c

^aThe average measurements of *P. nuttalli* agree more nearly with those of *P. p. pica* than with any other form, comparing with the latter as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at nos- trils.	Tarsus.	Middle toe.
MALES.						
Six adult males of <i>Pica pica pica</i> (Europe)	190	239	33.5	12.5	48	27.5
Six adult males of <i>Pica nuttalli</i>	187	237.5	31.5	12.5	47	23
Eight adult males of <i>Pica pica hudsonia</i> from western United States.....	205.5	281.5	36.5	13	48.5	25.5
FEMALES.						
Seven adult females of <i>Pica pica pica</i> (Europe)...	186	232.5	32.5	12.5	47	26
Seven adult females of <i>Pica nuttalli</i>	186	239.5	30.5	12	48	23
Eight adult females of <i>Pica pica hudsonia</i> from western United States.....	197.5	270.5	33.5	12.5	46	24

^bSix specimens.

^cSeven specimens.

Central California, from Ventura, Kern, and Tulare counties on the south to Tehama County on the north; chiefly the Sacramento and San Joaquin valleys, more rare and irregularly distributed along the coast.

- Pica nuttalli* AUDUBON, Orn. Biog., iv, 1838, 450, pl. 362 (Santa Barbara, California; type in coll. U. S. Nat. Mus.); Birds Am., oct. ed., iv, 1842, 104, pl. 228.—BONAPARTE, Geog. and Comp. List, 1838, 27.—NUTTALL, Man. Orn. U. S. and Can., 2d ed., i, 1840, 236.—NEWBERRY, Rep. Pacific R. R. Surv., x, pt. iv, 1857, 84, pl. 26.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 578; ed. 1860 (Birds N. Am.), atlas, pl. 26; Cat. N. Am. Birds, 1859, no. 433.—HEERMANN, Rep. Pacific R. R. Surv., x, pt. vi, 1859, 54 (w. slope Sierra Nevada, California and Oregon).—COOPER, Orn. Cal., 1870, 295 (int. valleys and coast s. of Monterey to Santa Barbara).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, pl. 38, fig. 3.—RIDGWAY, Orn. 40th Parallel, 1877, 519 (Sacramento); Nom. N. Am. Birds, 1881, no. 287.—SHARPE, Cat. Birds Brit. Mus., iii, 1877, 66 (Santa Clara Co.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 476.—EVERMANN, Auk, iii, 1886, 181 (Ventura Co., California).—TOWNSEND, Proc. U. S. Nat. Mus., x, 1887, 211 (upper Sacramento Valley; habits).—STONE, Proc. Ac. Nat. Sci. Phila., 1891, 442 ("Columbia River").—FISHER (A. K.), North Am. Fauna, no. 7, 1893, 68 (Visalia; Tulare Co.; San Luis Obispo; Santa Ynez R., etc.).—BENDIRE, Life Hist. N. Am. Birds, ii, 1895, 355, pl. 3, fig. 14 (egg).—BARLOW, The Avifauna, i, 1885, 20 (habits).—FISHER (W. K.), Condor, ii, 1900, 137 (Mount St. Helena, Napa Co., California).—NOACK, Condor, iv, 1902, 78 (vocal powers).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 271.
- P[ica] nuttalli* BONAPARTE, Consp. Av., i, 1850, 383.—COUES, Key N. Am. Birds, 2d ed., 1884, 421.—RIDGWAY, Man. N. Am. Birds, 1887, 352.—MCGREGOR, Auk, xvi, 1891, 78, in text (Shasta Co.).
- Pica nuttallii* AUDUBON, Synopsis, 1839, 152.—WOODHOUSE, in Rep. Sitgreaves' Expl. Zuffi and Col. R., 1853, 77 (San Francisco to San José).
- Cleptes nuttalli* GAMBEL, Journ. Ac. Nat. Sci. Phila., 2d ser., i, 1847, 46 (Santa Barbara; habits).
- [*Pica melanoleuca*.] Var *nuttallii* COUES, Key N. Am. Birds, 1872, 164.
- Pica melanoleuca* . . . var. *nuttalli* COUES, Check List, 1873, no. 233a.
- [*Pica melanoleuca* var. *hudsonica*] c. *nuttalli* COUES, Birds N. W., 1874, 212 (synonymy).
- Pica melanoleuca nuttalli* RIDGWAY, Bull. Essex Inst., vi, Oct., 1874, 172 (Sacramento).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1876, 252 (Santa Clara Valley and Santa Barbara, California).
- Pica caudata*, var. *nuttalli* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 270.
- Pica rustica nuttalli* COUES, Check List, 2d ed., 1882, no. 348.
- P[ica] r[ustica] nuttalli* COUES, Key N. Am. Birds, 2d ed., 1884, 421.
- Pica* ? (*Pica* var.) *nuttalli* COOPER, Proc. Cal. Ac. Sci., vi, 1875, 198.

Genus CALOCITTA Gray.

- Calocitta* GRAY, List Gen. Birds, 1841, 50. (Type, *Pica bullockii* Wagler, = *P. formosa* Swainson.)
- Callicitta* (emendation) CABANIS, Mus. Hein., i, Oct., 1851, 225.
- Cyanurus* (not of Swainson, 1831) BONAPARTE, Consp. Av., i, 1850, 380. (Type, *Pica bullockii* Wagler, = *P. formosa* Swainson.)

Large, long-tailed Garrulinæ with wholly exposed nostrils, a conspicuous recurved crest, conspicuous white tips to shorter rectrices, and underparts mainly white.

Bill stout, its depth at nostrils greater than half the distance from anterior edge of nostril to tip of maxilla; culmen and gonys distinctly convex. Nostrils wholly exposed, beveled off anteriorly, margined above and behind by the membranous covering of the nasal fossæ. Nasal tufts entirely absent (*C. collieri*) or but slightly developed (*C. formosa* and subspecies). A long and very conspicuous erectile crest springing from forehead or anterior portion of crown, composed of rather narrow, rather stiff, somewhat spatulate, and more or less recurved feathers. Wings rather long, the primaries exceeding secondaries by about the length of the bill; seventh, sixth, and fifth primaries longest and nearly equal, the tenth more than half as long as the longest. Tail very long (middle rectrices at least one and one-third, sometimes nearly three times, as long as wing), much graduated (middle rectrices much more than twice as long as lateral pair). Tarsus much longer than exposed culmen (about equal to length of commissure), with planta tarsi undivided, except on lower portion: middle toe, with claw, decidedly shorter than tarsus.

Coloration.—Above plain blue (the back, etc., sometimes grayish); crest black (sometimes with white tips); four outermost rectrices very broadly tipped with white; underparts mainly white, the chest and throat black or else chest crossed by a curved black band.

Nidification.—Nest bulky, composed of thorny twigs, placed in a thorny tree. Eggs unknown.

Range.—Western Mexico to Costa Rica. (Two species.)

KEY TO THE SPECIES AND SUBSPECIES OF *Calocitta*.

- a. Throat and chest black, or mostly black; sides of head black, with pale blue malar patch.
 - b. A pale blue superciliary spot; crest-feathers entirely black or with indistinct bluish tips. (Western Mexico.).....*Calocitta collieri*, adult (p. 294)
 - bb. No blue superciliary spot; crest-feathers conspicuously tipped with white.
Calocitta collieri, young (p. 294)
- aa. Throat and chest white, the latter margined below by a curved band or collar of black; sides of head white, or bluish white (sometimes with a blackish triangular malar or suborbital patch).
 - b. A more or less distinct triangular malar or suborbital patch of black; back and scapulars distinctly gray, with little if any bluish tinge; occiput with more or less of black (often wholly black). (Southwestern Mexico, from States of Colima and Puebla south to Oaxaca.).....*Calocitta formosa formosa* (p. 295)
 - bb. No trace of any dusky malar or suborbital patch (or else back and scapulars distinctly bluish); back and scapulars distinctly bluish; occiput bright blue, without any black. (Chiapas to Costa Rica.)

Calocitta formosa azurea (p. 296)

CALOCITTA COLLIEI (Vigors).

COLLIE'S MAGPIE-JAY.

Adults (sexes alike).—Frontal, loreal, postocular, and auricular regions, chin, throat, and chest, uniform black; crest black, the longer feathers more or less distinctly bluish at tips; a superciliary spot of pale blue or bluish white, extending posteriorly to beneath the crest, where deepening into the dull campanula blue of the occiput; a bifurcated malar patch of flax flower blue, the upper arm extending upward to the lower eyelid, the lower edge margined with white; upper parts, except as described, plain blue, duller or more grayish on back and scapulars, deeper (dull french blue, or approaching cyanine blue) on upper tail-coverts and tail; four lateral rectrices very broadly and abruptly tipped with white; under parts, posterior to chest, white, the sides and flanks tinged with gray; bill, legs, and feet black.

Young.—Similar to adults, but all the feathers of the crest broadly and abruptly tipped with white, feathers of occiput and hindneck also tipped with white (these tips broader on lateral portions, forming continuous white bordering upper and posterior margins of black auricular space), and pale blue superciliary patch absent (replaced by black).

Adult male.—Length (skins), 654–749 (693); wing, 210.5–221 (214.5); tail, 435–508 (463.5); exposed culmen, 33–36 (34.5); depth of bill at nostrils, 14.5–15 (15); tarsus, 44.5–48 (47); middle toe, 27.5–30.5 (29.5).^a

Adult female.—Length (skins), 575–724 (653.5); wing, 198–216 (205); tail, 406.5–508 (443.5); exposed culmen, 33–36 (34); depth of bill at nostrils, 13–15 (14.5); tarsus, 44.5–47.5 (46); middle toe, 30–31.5 (30.5).^a

Western Mexico, north to southern Sonora (Alamos, Camoa, Plomosas, etc.) and western Chihuahua (Jesus Maria, El Carmen, etc.), south to Jalisco (San Sebastian, Zapotlan, Guadalajara, etc.), east to Guanajuato and Durango (Huasamota).

[Occasional specimens show a greater or less amount of white or pale bluish on the throat and chest, sometimes forming a large patch, margined below by a black collar. Such examples have the appearance of being hybrids or “intergrades” between *C. colliei* and *C. formosa*; but since among them are specimens from extreme northern localities, they can only be considered as representing individual variation: hybridism or intergradation with *C. formosa* being of course possible only where the two occur together, which, if anywhere, would be in the extreme southern portion of the range of *C. colliei*.]

Pica colliei VIGORS, Zool. Journ., iv, 1829, 353, pl. 12 (San Blas, Territoria de Tepic, w. Mexico; type in coll. Brit. Mus.); Zool. Voy. “Blossom,” 1839, 22 pl. 7 (San Blas; Mazatlan).—SCHLEGEL, Mus. Pays-Bas, Coraces, 1867, 43 (w. Mexico).

^aSeven specimens.

- [*Cyanurus*] *colliei* BONAPARTE, Consp. Av., i, 1850, 381.—GRAY, Hand-list, ii, 1870, 6, no. 6126.
- Cyanurus colliei* DUGÈS, La Naturelleza, i, 1869, 139 (Guadalajara; Guanajuato).
- Calocitta colliaei* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 592.
- Calocitta colliei* FINSCH, Abh. Nat. Ver. Brem., i, July, 1870, 334 (Mazatlan).—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 284 (Mazatlan; habits).—SHARPE, Cat. Birds Brit. Mus., iii, 1877, 89 (San Blas).—RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880, 236.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1887, 507.—STONE, Proc. Ac. Nat. Sci. Phila., 1891, 442 ("Acapulco").—JOUY, Proc. U. S. Nat. Mus., xvi, 1893, 782 (Barranca Ibarra, Jalisco; habits, etc.).
- [*Calocitta*] *colliei* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 40.
- [*Calocitta*] *colliei* RIDGWAY, Man. N. Am. Birds, 1887, 350, footnote.
- Pica bennettii* GRAY, in Griffith's ed. Cuvier's Anim. Kingd., Aves, ii, 1834, 334, plate (Mazatlan).
- Corvus bullockii* (not *Pica bullockii* Wagler) AUDUBON, Orn. Biog., i, 1831, 483, pl. 96 ("Columbia River").
- Pica bullockii* (not of Wagler) AUDUBON, Synopsis, 1839, 152; Birds Am., oct. ed., iv., 1842, 105, pl. 229 ("North California").
- Garrulus bullockii* NUTTALL, Man. Orn. U. S. and Can., i, 1832, 230 ("Columbia R.").
- Cyanura bullocki* BONAPARTE, Proc. Zool. Soc. Lond., 1837, 115.
- Cyanurus bullocki* BONAPARTE, Proc. Zool. Soc. Lond., 1837, 115; 1850, 84 (diagn. and synonymy); Geog. and Comp. List, 1838, 27; Nuovi Ann. Sc. Nat. Bolong., ii, 1839, 343.
- [*Calocitta*] *bullockii* GRAY, List Gen. Birds, 1841, 50, part.
- P[silorhinus] bullockii* GRAY, Gen. Birds, ii, 1849, 308 (excl. syn. part).
- Calocitta elegans* FINSCH, Abh. Nat. Ver. Brem., i, June, 1870, 335 (Mazatlan, Sinaloa; coll. Bremen Mus.;=young).

CALOCITTA FORMOSA FORMOSA (Swainson).

BULLOCK'S MAGPIE-JAY.

Similar to *C. colliei*, but smaller, with relatively much shorter tail; sides of head chiefly white; chin, throat, and chest white (the latter crossed by a black collar), and the back gray instead of blue.

Adult male.—Pileum (including occiput and crest), a patch on side of neck (behind auriculars), a more or less well developed triangular patch on malar region (extending upward to eye), and a curved band or collar across chest, black (crown and occiput sometimes mixed or tinged with blue); hindneck, back, scapulars, rump, and wings plain ash gray, the first and last more or less tinged with blue, especially the secondaries, basal half of primaries, primary coverts, and alulae; upper tail-coverts and tail plain blue (dull cobalt or ultramarine), the four outermost rectrices very broadly tipped with white and with their inner webs blackish; sides of head (except as described) and under parts (except collar across chest) white, the first sometimes tinged with pale purplish blue, especially on malar region; bill, legs, and feet black; iris brown;^a length (skins). 457–520.5 (486); wing,

^a According to Xantus, manuscript.

187-193.5 (191); tail, 284.5-334 (306.5); exposed culmen, 30.5-33 (31); depth of bill at nostrils, 12.5-15 (14.5); tarsus, 42-46 (44.5); middle toe, 28-30 (29.5).^a

Adult female.—Similar to adult male, but somewhat smaller and with the crown and occiput more or less blue (sometimes entirely blue except along lateral edges); length (skins), 482.5-514.5 (490.5); wing, 178-193.5 (183); tail, 267-314 (287.5); exposed culmen, 29-34 (30.5); depth of bill at nostrils, 12.5-14 (13.5); tarsus, 39-45.5 (42.5); middle toe, 28.5-30 (29.5).^b

Southwestern Mexico, from the States of Colima and Puebla to Oaxaca.

Pica formosa SWAINSON, Philos. Mag., new ser., i, 1827, 437 (Temascaltepec, Mexico).

[*Cyanurus*] *formosus* SWAINSON, Fauna Bor.-Am., ii, 1831, 495, in text.

Calocitta formosa SCLATER, Proc. Zool. Soc. Lond., 1859, 381 (Oaxaca; crit.).—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 285 (Colima; Manzanilla Bay; Rio de la Armeria).—LAWRENCE, Bull. U. S. Nat. Mus., no. 4, 1876, 24 (Juchitan and Tehuantepec City, Oaxaca).—SHARPE, Cat. Birds Brit. Mus., iii, 1877, 88, part (Oaxaca; San Juan del Rio).—SALVIN, Proc. Zool. Soc. Lond., 1883, 423 (Acapulco, Guerrero).—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 153 (Chietla, Puebla).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1887, 508, part (Mexican references and localities).—STONE, Proc. Ac. Nat. Sci. Phila., 1891, 442 (Mexico).

[*Calocitta*] *formosa* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 40, part (Mexico).

C[alocitta] formosa RIDGWAY, Man. N. Am. Birds, 1887, 350, footnote, part (Mexico).

Pica bullockii WAGLER, Syst. Av., 1827, fol. 11, p. 6 (Mexico).—SCHLEGEL, Mus. Pays-Bas, Coraces, 1867, 43 (e. Mexico).

C[alocitta] bullockii GRAY, List Gen. Birds, 1841, 50, part.

[*Cyanurus*] *bullocki* BONAPARTE, Consp. Av., i, 1850, 380 ("Vera Cruz").

C[allicitta] bullocki CABANIS, Mus. Hein., i, 1851, 225 (Mexico).

Garrula gubernatrix TEMMINCK, Pl. Col., ii (livr. 73, Jan. 1828), pl. 436 (Mexico; Leyden Mus.).

P[silorhinus] gubernatrix GRAY, Gen. Birds, ii, 1849, 308.

Cyanurus gubernatrix BONAPARTE, Proc. Zool. Soc. Lond., 1850, 84 (Mexico).

CALOCITTA FORMOSA AZUREA Nelson.

CENTRAL AMERICAN MAGPIE-JAY.

Similar to *C. f. formosa*, but more brightly colored (back, scapulars, and wings dull cerulean or glaucous blue instead of gray), crown and occiput bright (deep flax-flower or azure) blue, sides of head entirely white,^c or bluish white (except a black post-auricular spot), white tips

^a Six specimens.

^b Five specimens.

^c The blackish triangular malar patch of *C. f. formosa* sometimes indicated in specimens from Chiapas, but in all specimens examined from Guatemala and southward entirely absent. In many specimens the sides of head, and occasionally the chin, strongly tinged with flax-flower blue.

to rectrices more extended, and size (except length of tail) averaging somewhat larger.

Adult male.—Length (skins), 413–571.5 (500.5); wing, 181.5–208.5 (192.5); tail, 235–343 (291.5); exposed culmen, 28.5–36.5 (32.5); depth of bill at nostrils, 14–16.5 (15); tarsus, 42.5–48.5 (46.5); middle toe, 28–32 (30).^a

Adult female.—Length (skins), 470–488 (471); wing, 180.5–193 (185.5); tail, 231–275.5 (251.5); exposed culmen, 30–35.5 (33); depth of bill at nostrils (one specimen), 14; tarsus, 43.5–48 (46); middle toe, 29.5–31.5 (30.5).^b

State of Chiapas (Huehuetan), southern Mexico, and southward through Guatemala to western Costa Rica; chiefly on the Pacific side, but occurring in southeastern Guatemala (Rio Managua) and in Honduras (?).

Calocitta formosa (not *Pica formosa* Swainson) SCLATER and SALVIN, Ibis, 1859, 22 (both coasts, Guatemala).—SCLATER, Cat. Am. Birds, 1862, 145 (Guatemala).—SALVIN, Ibis, 1870, 114 (Costa Rica).—SHARPE, Cat. Birds Brit. Mus., iii, 1877, 88, part (Honduras; Nicaragua).—BOUCARD, Liste Ois. Guat., 1878, 37.—NUTTING, Proc. U. S. Nat. Mus., v, 1882, 393 (La Palma de Nicoya, w. Costa Rica); vi, 1883, 374 (San Juan del Sur, Nicaragua), 384 (Sucuya, Nicaragua), 392 (Ometepe, Nicaragua; habits, etc.).—ZELEDON, Cat. Aves de Costa Rica, 1882, 10; Anal. Mus. Nac. Costa Rica, i, 1887, 113 (Nicaragua; Bojaces and Liberia, w. Costa Rica).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1887, 509, part (Savana Grande, Escuintla, Retalhuleu, Rio Montagua, Chuacas, and Zacapa, Guatemala; Tigre I. and Comayagua, Honduras; Ometepe I., Nicaragua).—UNDERWOOD, Ibis, 1896, 437 (Volcan de Miravalles, Costa Rica).—LANTZ, Trans. Kans. Ac. Sci. for 1896–97 (1899), 222 (Naranjo, Guatemala).

[*Calocitta*] *formosa* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 40, part (Guatemala, Costa Rica).

C[alocitta] formosa RIDGWAY, Man. N. Am. Birds, 1887, 350, part (Costa Rica).

^aTwelve specimens.

^bThree specimens.

Specimens from Guatemala and southward are smaller than those from Chiapas, and, as a rule, are appreciably less distinctly blue in the color of the back, etc.; but without a much larger series I am unable to determine whether the differences are sufficiently obvious or constant to justify further subdivision of the species. Average measurements according to locality are as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at nos- trils.	Tarsus.	Middle toe.
MALES.						
Five adult males from Chiapas.....	202	315	35	15.5	46.5	31
Three adult males from Guatemala.....	190.5	266.5	30.5	15	45.5	29.5
Four adult males from Nicaragua and Costa Rica.	188.5	273.5	31	14.5	45.5	30
FEMALES.						
Two adult females from Chiapas.....	186.5	261.5	34.5	14	47	30.5
One adult female from Nicaragua.....	182.5	231	30	.....	43.5	30

Colocitta bullockii (not *Pica bullocki* Wagler) SCLATER, Proc. Zool. Soc. Lond., 1858, 358 (Comayagua, Honduras).

[*Cyanurus*] *bullockii* GRAY, Hand-list, ii, 1870, 6, no. 6125 (Guatemala).

Cyanurus gubernatrix (not *Garrula gubernatrix* Temminck) TAYLOR, Ibis, 1860, 113 (Tigre I., Pacific side Honduras; habits).

Colocitta formosa azurea NELSON, Auk, xiv, Jan. 1897, 55 (Huehuetan, Chiapas, s. e. Mexico; coll. U. S. Nat. Mus.).

Genus PSILORHINUS Rüppell.

Psilorhinus RÜPPELL, Mus. Senckenburg, 1837, 188. (Type, *P. mexicanus* Rüppell.)

Large, plainly colored Garrulinæ, with the nostrils wholly exposed.

Bill stout, compressed (much higher than broad at nostrils); culmen curved throughout, shorter than tarsus. Frontal feathers bristly, erect posteriorly, semi-antrorse anteriorly, forming a slight crest over base of the maxilla. Nostril rounded, beveled off anteriorly to the surface of the maxilla. Wings and tail about equal in length, the latter averaging a little the longer; seventh to fourth primaries nearly equal and longest, the tenth much longer than the tarsus, the longer with tips rather narrow and straight; longest primaries exceeding secondaries by more than length of middle toe, or of bill from nostril. Tail graduated for more than length of tarsus, the rectrices rather broad. Tarsus about twice as long as length of bill from nostril, the plantar-tarsi entire, except at extreme lower portion; middle toe, with claw, much shorter than tarsus.

Coloration.—Head, neck, and chest plain deep sooty brown, darker on pileum and sides of head; upper parts plain sooty brown, grayer (sometimes somewhat glaucous) on remiges and rectrices, the latter sometimes tipped with white; under parts of body varying from white to sooty gray or brown.

Nidification.—(Unknown.)

Range.—Eastern Mexico to Costa Rica. (Two species.)

KEY TO THE SPECIES AND SUBSPECIES OF PSILORHINUS.

- a. Rectrices without white tips. (*Psilorhinus morio*.)
 - b. Under parts of body very pale brownish gray or grayish brown, passing into white posteriorly. (Northeastern and arid portions of east-central Mexico.)
Psilorhinus morio morio (p. 299)
 - bb. Under parts of body deep brownish gray or grayish brown. (Southern and humid portions of east-central Mexico.)...*Psilorhinus morio fuliginosus* (p. 300)
- aa. Rectrices (except middle pair) broadly tipped with white. (*Psilorhinus mexicanus*.)
 - b. Larger (wing and tail averaging more than 203, tarsus averaging 52); white tips to rectrices narrower (averaging 29). (Southeastern Mexico.)
Psilorhinus mexicanus mexicanus (p. 301)
 - bb. Smaller (wing and tail averaging decidedly less than 203, tarsus averaging decidedly less than 51); white tips of rectrices broader (averaging more than 30.5).

- c. Larger (wing averaging 195, tail 195.5); bill much larger (length from nostril averaging 27.5, depth at nostrils 15.5); white tips to rectrices smaller (that on inner web of outermost averaging 32); under parts less purely white. (Guatemala to Costa Rica.).....*Psilorhinus mexicanus cyanogenys* (p. 301)
- cc. Smaller (wing averaging 187, tail 190); bill much smaller (length from nostril averaging 24, depth at nostrils 14.5); white tip to rectrices larger (that on inner web of outermost averaging 44.5); under parts more purely white. (Yucatan.).....*Psilorhinus mexicanus vociferus* (p. 303)

PSILORHINUS MORIO MORIO (Wagler).

BROWN JAY.

Adults (sexes alike).—Head and neck plain dark sooty brown, fading gradually into uniform grayish brown or sepia on back, scapulars, rump, and upper tail-coverts; wings and tail plain deep olive-grayish, appearing more bluish or glaucous in certain lights; dark sooty color of throat fading on chest into light grayish brown or drab, this into very pale brownish gray or dull grayish white on remaining under parts; bill wholly black, wholly yellow, or partly of both colors; iris brown?; legs and feet yellow or black or partly of both colors.

Young.—Not essentially, if at all, different in coloration from adults.

Adult male.—Length (skins), 397.5–442 (421); wing, 201.9–215.9 (208.5); tail, 210.3–226.1 (218.2); bill from nostril, 26.2–31.7 (28.4); depth of bill at nostrils, 15.5–16.5 (16); tarsus, 47.5–52.1 (50); middle toe, 30.5–34.3 (32.3).^a

Adult female.—Length (skins), 393.5–426.5 (414); wing, 198–206 (202); tail, 200.5–214.5 (209); bill from nostril, 25.5–28 (26.5); depth of bill at nostrils, 15–15.5 (15.5); tarsus, 49.5–51.5 (50.5); middle toe, 30–33 (31).^b

Northeastern Mexico, in States of Nuevo Leon (Boquillo; China; Monterey), Tamaulipas (Montemorelos; Alta Mira), and in arid districts of San Luis Potosi, Hidalgo, and Vera Cruz.

P[ica] morio WAGLER, Isis, 1829, 751, part c (Mexico; ex *Corvus morio* Lichtenstein, manuscript).

Pica morio WAGLER, Isis, 1831, 527.—SCHLEGEL, Mus. Pays-Bas, Coraces, 1867, 44, part (Mexico).

Corvus morio LICHTENSTEIN, Preis-Verz. Mex. Vög., 1831, 1; Journ. für Orn. 1863, 56 (reprint).—EYDOUX and GÉRAVAIN, Voy. "Favorite," v, Zool., 1839, 54 ("San Francisco, California").

Psilorhinus morio GRAY, List Gen. Birds, 1841, 51.

P[silorhinus] morio GRAY, Gen. Birds, ii, 1849, 308.—COUES, Key N. Am. Birds, 2d ed., 1884, 419.—RIDGWAY, Man. N. Am. Birds, 1887, 352, part.—STONE, Proc. Ac. Nat. Sci. Phila., 1891, 94, 95, 96, part (crit.).

[*Psilorhinus*] *morio* BONAPARTE, Consp. Av., i, 1850, 381.—GRAY, Hand-list, ii, 1870, 6, no. 6127.—COUES, Key N. Am. Birds, 1872, 164.—SCLATER and SALVIN, Nom. Av. Neotr. 1873, 40, part.

^a Seven specimens.

^b Four specimens.

^c Based on young.

Ps[ilorhinus] morio CABANIS, Mus. Hein., i, 1851, 226, excl. syn. part (Jalapa, Vera Cruz).

Psilorhinus morio SCLATER, Proc. Zool. Soc. Lond., 1856, 300 (Cordova, Vera Cruz); 1859, 365 (Jalapa); Cat. Am. Birds, 1862, 145, part (in synonymy).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 592 (Boquilla, San Diego, and China, Nuevo Leon); ed. 1860 (Birds N. Am.), atlas, pl. 68, figs. 1, 2; Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 21 (Boquilla, etc., Nuevo Leon); Cat. N. Am. Birds, 1859, no. 444.—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1869, 363 (City of Mexico; Atlantic tierra caliente).—SUMICHRIST, Mem. Bost. Soc. N. H., i, 1869, 554 (hot and temperate regions, Vera Cruz, up to 9,000 ft.).—COUES, Check List, 1873, no. 232.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 304, part, pl. 42, fig. 2 (Cordova and Mirador, Vera Cruz; Boquilla, etc., Nuevo Leon).—BOUCARD, Catalog. Avium, 1876, 280, no. 8765 (Mexico; "Texas").—SHARPE, Cat. Birds Brit. Mus., iii, 1877, 139, excl. syn. part (Orizaba).—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 153 (Jalapa and Plan del Rio, Vera Cruz).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1887, 505.—STONE, Proc. Ac. Nat. Sci. Phila., 1891, 442 (Mexico).—RICHMOND, Proc. U. S. Nat. Mus., xviii, 1896, 630 (Alta Mira, Tamaulipas).—CHAPMAN, Bull. Am. Mus. N. H., x, 1898, 31 (Jalapa).

Psilorhinus mericanus, part, RÜPPELL, Mus. Senckenb., 1837, 189 (supposed young from Tamaulipas).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1887, 506, part (localities Tamaulipas, and Boquilla and China, Nuevo Leon).^a

PSILORHINUS MORIO FULIGINOSUS (Lesson).

SOOTY JAY.

Similar to *P. m. morio*, but darker, especially the under parts, which from the breast backward are deep sooty gray or grayish brown, instead of whitish or pale brownish gray.

Adult male.—Length (skins), 380–420 (386.4); wing, 190–217 (200); tail, 190–224 (203); bill from nostril, 27–30 (28.3); depth of bill at nostrils, 16–17.5 (16.8); tarsus, 49–55 (51.8); middle toe, 31.5–35 (33.1).^b

Adult female.—Length (skins), 380; wing, 190–198 (194); tail (one specimen), 193; bill from nostril, 25–27 (26); depth of bill (one specimen), 16; tarsus, 49–49.5 (49.2); middle toe, 29–32 (30.5).^c

Southeastern Mexico, in humid districts of San Luis Potosi, Hidalgo?, Vera Cruz (Pasa Nueva: Buena Vista), Chiapas (Guichicovi), and Tabasco (Montecristo).

Pica fuliginosa LESSON, Traité d'Orn., i, 1831, 333, part (descr. supposed adult; Mexico).—PUCHERAN, Rev. et Mag. de Zool., 1853, 550 (crit.).—HARTLAUB, Journ. für Orn., 1855, 424 (crit.).

(?) *Psilorhinus morio* (not *Pica morio* Wagler?) SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1869, 363, part (Atlantic tierra caliente?).—SUMICHRIST, Mem. Bost. Soc. N. H., i, 1869, 554, part (hot region of Vera Cruz).—SHARPE, Cat. Birds Brit. Mus., iii, 1875, 139, part.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1887, 505, part.

^aThese specimens are in the collection of the U. S. National Museum, and are true *P. morio*.

^bSeven specimens, from Pasa Nueva, southern Vera Cruz.

^cTwo specimens, from Buena Vista, southern Vera Cruz.

Psilorhinus morio LAWRENCE, Bull. U. S. Nat. Mus., no. 4, 1876, 25 (Guichicovi, Chiapas).

P[si]lorhinus morio RIDGWAY, Man. N. Am. Birds, 1887, 352, part.—STONE, Proc. Ac. Nat. Sci. Phila., 1891, 94, 95, 96, part (crit.).

[*Psilorhinus morio*] SCLATER and SALVIN, Nom. Av. Neotr., 1873, 40, part.

PSILORHINUS MEXICANUS MEXICANUS Ruppell

WHITE-TIPPED BROWN JAY.

Similar to *P. morio morio*, but rectrices (except middle pair) broadly tipped with white.

Adult male.—Length (skins), 419–457 (433); wing, 199.5–212 (206.5); tail, 200.5–213.5 (206); bill from nostril, 28–31.5 (29.5); depth of bill at nostrils, 16.5–17.5 (17); tarsus, 51–53.5 (52.5); middle toe, 31–33 (32); length of white tip to inner web of outermost tail-feather, 28–31.5 (29.5).^a

Adult female.—Length (skins), 414–419 (416.5); wing, 190.5–202 (196); tail, 190.5–207 (198.5); bill from nostril, 26–26.5 (26.2); depth of bill at nostrils, 16.5; tarsus, 51–51.5 (51.2); middle toe, 33; length of white on inner web of outermost tail-feather, 16.5–35.5 (26).^b

Southeastern Mexico, in States of Vera Cruz (Mirador; Catemaco) Oaxaca, Chiapas (Guichicovi) and Tabasco (Montecristo).

P[ica] morio, part, WAGLER, Isis, 1829, 751 (supposed female or young; Mexico).

Psilorhinus morio BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 304, part (spec. no. 23917, from Mirador, Vera Cruz).

Pica fuliginosa, part, LESSON, Traité d'Orn., 1831, 333 (supposed young; Mexico).

Psilorhinus mexicanus RÜPPELL, Mus. Senckenb., 1837, 189, pl. 11, fig. 2.—SHARPE, Cat. Birds Brit. Mus., iii, 1877, 140, part (Mexico).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1887, 50, part, in text (Mirador).

[*Psilorhinus mexicanus*] RIDGWAY, Man. N. Am. Birds, 1887, 352, part (s. Mexico).—STONE, Proc. Ac. Nat. Sci. Phila., 1891, 94, 95, 96, part (s. Mexico).

P[si]lorhinus cyanogenys (not of Sharpe) RIDGWAY, Man. N. Am. Birds, 1887, 352, part (Mirador, Vera Cruz).^c

(?) *Psilorhinus cyanogenys* LANTZ, Trans. Kans. Ac. Sci. for 1896–97 (1898), 222 (Rinconada, Mexico).

PSILORHINUS MEXICANUS CYANOGENYS (Sharpe).

CENTRAL AMERICAN BROWN JAY.

Similar to *P. m. mexicanus*, but smaller, and with the white tips to the rectrices larger.

Adults.—Length (skins), 362–416.5 (393); wing, 182.5–206 (195); tail, 185.5–209.5 (195.5); bill from nostril, 26–29 (27.5); depth of bill at nostrils, 14.5–16.5 (15.5); tarsus, 47–51 (48.5); middle toe, 29–32.5 (30.5); length of white tip to inner web of outermost tail-feather, 25–42 (32).^d

^a Four specimens.

^b Two specimens.

^c Specimen with distinct bluish gray malar patch.

^d Fifteen specimens, so few of which have the sex determined that I am unable to give separate measurements for the two sexes.

Central America (Guatemala, Honduras, Nicaragua, and Costa Rica).

Although the name *cyanogenys* was based by Dr. Sharpe on what was clearly an unusual development of the lighter colored triangular malar patch, and is therefore misleading, it is nevertheless necessary to retain it for the southern form, since it is the only one based on the Central American bird. In most specimens this malar patch is obsolete, sometimes quite obliterated, and in no specimen is it blue in color, but dull gray. In none of the Central American birds is it nearly so distinct as in an example of true *P. mexicanus* from Mirador,^a State of Vera Cruz, Mexico, in which it is very conspicuous, its color being clear ash gray.

Psilorhinus morio (not *Pica morio* Wagler) MOORE, Proc. Zool. Soc. Lond., 1859, 57 (Omoa, Honduras; Belize, British Honduras).—SCLATER and SALVIN, Ibis, 1859, 22 (Quirigua and Iguana, e. Guatemala).—TAYLOR, Ibis, 1860, 113 (Taulevi, Honduras).—CABANIS, Journ. für Orn., 1861, 83 (Costa Rica).—SCLATER, Cat. Am. Birds, 1862, 145, excl. syn. part (tierra caliente, Vera Paz, Guatemala).—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 104 (San José and Turrialba, Costa Rica).—FRANTZIUS, Journ. für Orn., 1869, 304 (Nicoya, Turrialba, etc., Costa Rica).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 304, part (Guatemala; Honduras; Costa Rica).—BOUCARD, Proc. Zool. Soc. Lond., 1878, 59 (San José, Costa Rica).

Pica morio (not of Wagler) SCHLEGEL, Mus. Pays-Bas, Coraces, 1867, 44, part (Costa Rica).

Psilorhinus mexicanus (not of Rüppell) SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1869, 363 (Guatemala; Honduras; Costa Rica), 1870, 837, 839 (San Pedro, Honduras; crit.).—SALVIN, Ibis, 1869, 314 (Costa Rica; crit.).—SHARPE, Cat. Birds Brit. Mus., iii, 1877, 140, part (Honduras; Costa Rica).—BOUCARD, Liste Ois. Guat., 1878, 37.—ZELEDON, Cat. Aves de Costa Rica, 1882, 10; Anal. Mus. Nac. Costa Rica, i, 1887, 113 (Cartago, Alajuela, and El Zarcero de Alajuela, Costa Rica).—NUTTING, Proc. U. S. Nat. Mus., v, 1883, 496 (Irazú, Costa Rica).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1887, 506, part (localities in Guatemala, British Honduras?, Honduras, Nicaragua, and Costa Rica).—RIDGWAY, Man. N. Am. Birds, 1887, 352, part (Costa Rica); Proc. U. S. Nat. Mus., x, 1888, 588 (Segovia R., Honduras).—STONE, Proc. Ac. Nat. Sci. Phila., 1891, 443 (Nicaragua).—CHERRIE, Auk, ix, 1892, 250 (Costa Rica, 2,500–4,500 ft.).—UNDERWOOD, Ibis, 1896, 437 (Volcan de Miravalles, Costa Rica).—LANTZ, Trans. Kans. Ac. Sci. for 1896–97 (1898), 222 (St. Tomas, Guatemala).

[*Psilorhinus*] *mexicanus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 40, part (Guatemala; Honduras; Costa Rica).

P[*silorhinus*] *mexicanus* RIDGWAY, Man. N. Am. Birds, 1887, 352, part (Costa Rica).—STONE, Proc. Ac. Nat. Sci. Phila., 1891, 94, 95, 96, part (crit.; Nicaragua; Costa Rica).

Psilorhinus cyanogenys SHARPE, Cat. Birds Brit. Mus., iii, 1877, 140, pl. 9 (Pearl Bay Lagoon, e. Nicaragua; coll. Brit. Mus.).

P[*silorhinus*] *cyanogenys* RIDGWAY, Man. N. Am. Birds, 1887, 352, part (Pearl Bay).

^aNo. 23917, coll. U. S. Nat. Mus.; Dr. C. Sartorius.

PSILORHINUS MEXICANUS VOCIFERUS (Cabot).

YUCATAN BROWN JAY.

Similar to *P. m. cyanogenys*, but smaller, especially the bill; the white at tips of rectrices more extended, and the under parts of the body whiter (posterior half, including thighs, pure white).

Adults.—Length (skins), 374.5–401.5 (385.5); wing, 181–189 (187); tail, 183–196 (190); bill from nostril, 23.5–25 (24); depth of bill at nostrils, 14.5–15 (15); tarsus, 43.5–50 (46); middle toe, 27.5–30 (29); length of white spot on inner web of outermost tail-feather, 38–51 (44.5).^a

Yucatan.

Corvus vociferus CABOT, Proc. Bost. Soc. N. H., i, 1843, 155 (Yucatan; coll. S. Cabot, jr.); Journ. Bost. Soc. N. H., iv, 1844, 464 (do.).

P[tilorhinus] vociferus STONE, Proc. Ac. Nat. Sci., 1891, 95, in text.

Psilorhinus mexicanus (not of Rüppell) CHAPMAN, Bull. Am. Mus. N. H., viii, 1896, 282 (Chichen-Itza, Yucatan).

Genus CYANOCORAX Boie.

Cyanocorax BOIE, Isis, 1826, 975. (Type, *Corvus pileatus* Temminck, = *Pica chrysops* Vieillot.)

Coronideus^b CABANIS, Mus. Hein., i, Oct., 1851, 225. (Type, *Cyanocorax hyacinthinus* Cabanis, = *C. violaceus* Du Bus.)

Large-sized Garrulinae with frontal, loreal, and posterior nasal plumes erect and stiff, the nostrils hidden by well-developed antrorse tufts, and the crown more or less crested.

Nodification.—(Unknown?)

Range.—Costa Rica (Atlantic side) to Peru, Bolivia, Argentina, Paraguay, and southern Brazil. (Eight species, only one of them occurring north of the Isthmus of Panama.)

There is much difference in certain respects involving external structure among the species which are here referred to *Cyanocorax* in a more restricted sense than that usually employed, and a further subdivision may be desirable.

The type, *Pica chrysops* Vieillot, differs conspicuously from all the rest in the structure of the crest, which is well developed on the crown and occiput (especially the latter), and is composed of very stiff feathers, the tips of which turn upward, producing the appearance of coarse velvet. The style of coloration, however, even to the head markings, is quite the same as in *C. cayanus*, *C. affinis*, *C. sclateri*, and *C. cyanopogon*, in which the crest is very different, the feathers being decumbent at their tips instead of the reverse. *C. mystacalis* is a little aberrant in its more slender bill and wholly white five outer

^a Three specimens.

^b "Von *χρωναίδεϊς*, εως, ὁ nom. prop."

retrices. *C. violaceus* (type of *Coronideus* Cabanis) is structurally quite identical with *C. cyanopogon*, *C. cayanus*, etc., but lacks any white on the tail, has no blue or white markings on the head, and has the under parts of the body grayish violet instead of white or pale yellow. *C. cyanomelas* agrees with *C. violaceus* in the respects mentioned, but has the crest scarcely if at all developed, and has no light-colored nuchal area. It will be seen, therefore, that any further subdivision of the genus would necessitate a considerable addition to the number of genera.

Pica cærulea Temminck (= *Corvus azureus* Vieillot) is, however, so different in its conspicuously exposed nostrils and differently constructed crest that its removal from *Cyanocorax* seems to me to be quite necessary.

CYANOCORAX AFFINIS ZELEDONI Ridgway.

TALAMANCA JAY.

Similar to *C. a. affinis*,^a but decidedly brighter colored, with under parts of the body and tips of rectrices light creamy yellow instead of white or yellowish white.

Adults (sexes alike).—Head (except occiput), neck (except hind-neck), and chest uniform black; a conspicuous superciliary patch, a smaller patch immediately beneath posterior half of eye, and an elongated patch on anterior and upper portion of malar region, campanula blue; occiput and nape duller and more purplish blue; lower hindneck, back, and rump plain dull heliotrope purple or dull brownish violet-blue, the scapulars similar but rather darker; wings, upper tail-coverts, and tail dull violet-blue or plum purple, the latter broadly tipped with pale creamy yellow or yellowish white; under parts of body light creamy yellow; bill, legs, and feet black; iris sulphur-yellow.^b

Adult male.—Length (skins), 345.5–362 (354); wing, 158–167.5 (161.5); tail, 159–169 (163); bill from nostril, 20.5–23 (21.5); depth of bill at nostrils, 12.5–15 (14); tarsus, 48.5–50 (49.5); middle toe. 30–33 (31).^c

Adult female.—Length (skins), 305–330 (319.5); wing, 156–157.5 (157); tail, 147.5–151 (149.5); bill from nostril, 20.5–21.5 (21); depth of bill at nostrils, 13; tarsus, 49.5–51.5 (50); middle toe (one specimen) 30.5.^d

^a *Cyanocorax affinis* Pelzeln, Sitz. Ak. Wien, xx, 1856, 164.—*Cyanocorax sclateri* Heine, Journ. für Orn., viii, Mar., 1860, 115.

^b Zeledon, manuscript.

^c Four specimens.

^d Three specimens.

Isthmus of Panama northward to eastern Costa Rica (Talamanca).

(?) *Cyanocorax pileatus* (not *Corvus pileatus* Temminck) CASSIN, Proc. Ac. Nat. Sci. Phila., 1860, 138 (Rio Truando and Nercua, n. w. Colombia).^a

Uroleuca pileata LAWRENCE, Ann. Lyc. N. Y., vii, 1862, 296 (Panama R. R.).

Cyanocorax affinis (not of Pelzeln) SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 354 (Panama R. R.).—SALVIN, Proc. Zool. Soc. Lond., 1870, 191 (Calobre and Bugaba, Veragua).—SHARPE, Cat. Birds Brit. Mus., iii, 1877, 121, part (Chepo, Isthmus of Panama).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1887, 504, part (Costa Rica; Veragua; Isthmus of Panama).—ZELEDON, Cat. Aves de Costa Rica, 1882, 10; Anal. Mus. Nac. Costa Rica, i, 1887, 113 (Talamanca).—SALVADORI, Boll. Mus. Zool., etc., Torino, xiv, 1899, 5 (near Pita, Isthmus of Panama).

[*Cyanocorax*] *affinis* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 39, part (Veragua).

Cyanocorax affinis zeledoni RIDGWAY, Auk, xvi, July, 1899, 255 (Talamanca, Costa Rica; coll. U. S. Nat. Mus.).—BANGS, Auk, xviii, 1901, 368 (Divala, Chiriqui).

Genus XANTHOURA Bonaparte.

Xanthoura BONAPARTE, Consp. Av., i, May 6, 1850, 380 (Type, *Corvus peruvianus* Gmelin, = *C. yncas* Boddaert.)

Xanthura (emendation) BONAPARTE, Proc. Zool. Soc. Lond., 1850 (pub. Mar. 14, 1851), 83.

Xanthocitta CABANIS, Mus. Hein., i, Oct., 1851, 223 (ex. Bonaparte, manuscript) (Type, *Corvus peruvianus* Gmelin, = *C. yncas* Boddaert.)

Rather small (Garrulinae, allied to the genus *Cyanocorax*, but distinguished by smaller size (wing less than 139.5, usually less than 127 mm.) and different coloration; upper parts (except of head and neck, but including four middle rectrices) uniform green; under parts of body and four lateral pairs of rectrices yellow (under parts of body sometimes light green); chin, throat, chest, lores, and auricular region black; prefrontal plumes and malar patch (sometimes pileum and hindneck also) blue; forehead more or less white or yellowish white (this sometimes extending over pileum and hindneck).

Nidification.—Nest in small trees or bushes, open above, composed of thorny twigs, etc. Eggs, 3-5, grayish, greenish, or buffy white, speckled with grayish brown, etc.

Range.—Southern Texas to Peru and Venezuela. (Two species.)

KEY TO THE SPECIES AND SUBSPECIES OF XANTHOURA.

- a. Spots on eyelids deep blue, like malar patch; breast unicolored (yellow or green).
- b. Naso-frontal plumes much developed, conspicuously erect, or else whole pileum and hindneck whitish.^b (*Xanthoura yncas* and subspecies).^c

^a This reference may possibly pertain to true *C. affinis*, but in the absence of specimens for examination I am unable to determine the matter. The geographical position of the localities mentioned would, however, rather favor the supposition that the reference belongs here.

^b The two characters often combined.

^c All extralimital (South American).

- bb. Naso-frontal plumes slightly developed, scarcely, if at all, erect; pileum (except forehead) and hindneck always bright blue. (*Xanthoura luxuosa* and subspecies.)
- c. Under tail-coverts light green.
- d. Larger and brighter colored, with more white on forehead; back distinctly green (rarely tinged with blue); wing of male averaging 119, tail 134, exposed culmen 26, tarsus 38.5. (Eastern portion of Mexican plateau, from Vera Cruz and Puebla to highlands of Nuevo Leon and Tamaulipas.)
Xanthoura luxuosa luxuosa (p. 306)
- dd. Smaller and duller colored, with less white on forehead; back more bluish green, more or less tinged with pale blue; wing of adult male averaging 113, tail 126, exposed culmen 25, tarsus 37.5. (Lower Rio Grande Valley.).....*Xanthoura luxuosa glaucescens* (p. 308)
- cc. Under tail-coverts yellow (sometimes tinged with green).
- d. Under parts of body mostly light yellowish green; wing of adult male averaging 122, tail 141.5, exposed culmen 28, tarsus 39.5. (States of Oaxaca, Guerrero, Michoacan, and Chiapas, southern Mexico; northwestern Guatemala.).....*Xanthoura luxuosa vivida* (p. 309)
- dd. Under parts of body wholly clear yellow or (in some Guatemalan examples) slightly tinged with green; wing of adult male averaging 114, tail 135, exposed culmen 26, tarsus 37. (Eastern and central Guatemala to Yucatan and northern Honduras.)
Xanthoura luxuosa guatemalensis (p. 310)
- aa. Spots on eyelids white; breast bicolored (a conspicuous yellow crescent between black of chest and green of breast). (State of Jalisco, southwestern Mexico).
Xanthoura luxuosa speciosa (p. 311)

XANTHOURA LUXUOSA LUXUOSA (Lesson).

GREEN JAY.

Adults (sexes alike).—Nasal tufts, broad malar patch (extending up to and involving posterior half of lower eyelid), and small spot immediately over posterior half of eye deep campanula blue; crown, occiput, and hindneck campanula blue (slightly paler than malar spot, etc.), forehead white, or yellowish white; lores, chin, throat, chest, auricular region, and a superciliary line connecting the latter with the loreal space deep black, the jugular portion with a strongly convex, abruptly defined outline; back, scapulars, rump, upper tail-coverts, and wings plain yellowish green (varying from clear parrot green to nearly oil green), the wings, rump, and upper tail-coverts rather lighter or brighter than back; four middle rectrices duller or darker green, becoming more bluish green terminally; four lateral rectrices clear yellow (between maize yellow and lemon yellow); under parts, posterior to chest, including under tail-coverts, pale yellowish green, the lower portion of the abdomen and anal region pale yellow, and feathers of other portions pale yellow beneath the surface; under wing-coverts pale yellow; bill black; legs and feet brownish.

Adult male.—Length (skins), 254–299.5 (273.5); wing, 112.5–125 (118.5); tail, 129–145.5 (134); exposed culmen, 25–27.5 (26); depth of

bill at nostrils, 10–10.7 (10.4); tarsus, 36.5–40 (38.5); middle toe, 21–23.5 (21.5).^a

Adult female.—Length (skins), 254–274.5 (264); wing, 112.5–118 (114.5); tail, 121.5–136.5 (127.5); exposed culmen, 23–27 (25); depth of bill at nostrils, 9.5–11 (10); tarsus, 35–38.5 (36.5); middle toe, 20–22.5 (21).^b

Eastern edge of Mexican plateau, from States of Vera Cruz and Puebla to Nuevo Leon (Monterey) and southern Tamaulipas (Victoria, Alta Mira, etc.).

P[ica] chloronota, part, WAGLER, Isis, 1829, 750 (description of supposed young male; Mexico).

Garrulus luxuosus LESSON, Rev. Zool., Apr., 1839, 100 (Mexico).

Cyanocorax luxuosus DU BUS, Esquis. Orn., iv, 1848, pl. 18.—SCLATER, Proc. Zool. Soc. Lond., 1856, 300 (Cordova, Vera Cruz); 1859, 365 (Jalapa, Vera Cruz); 1864, 175 (Valley of Mexico); Cat. Am. Birds, 1862, 144 (Mexico).—SCHLEGEL, Mus. Pays-Bas, Coraces, 1867, 53, part (Mexico).

[*Cyanocorax*] *luxuosus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 39, part (Mexico).

[*Xanthoura*] *luxuosus* BONAPARTE, Consp. Av., i, 1850, 380 (Mexico).

Xanthoura luxuosa SUMICHRIST, Mem. Bost. Soc. N. H., i, 1869, 554 (hot and temp. regions Vera Cruz).—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 153 (Jalapa).—(?) STONE, Proc. Ac. Nat. Sci. Phila., 1891, 444 (Mexico).—CHAPMAN, Bull. Am. Mus. N. H., x, 1898, 30 (Jalapa).

X[anthoura] luxuosa RIDGWAY, Man. N. Am. Birds, 1887, 358, part.

Xanthura luxuosa SHARPE, Cat. Birds. Brit. Mus., iii, 1877, 132, part (Jalapa).—SCLATER, Ibis, 1879, 88, part (crit.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1887, 502, part (Guanajuato; Valley of Mexico; Perote, Puebla; Cordova and Jalapa, Vera Cruz).

[*Cyanocorax yncas*.] Var. *δ. luxuosa* DUBOIS, Bull. Ac. Roy. Belg., 2^{me} ser., xxxviii, 1874, 494, part (Mexico).

[*Cyanurus*] *luxuosus* GRAY, Hand-list, ii, 1870, 5, no. 6119 (Mexico).

Cyanocitta luxuosa DUGÈS, La Natureza, i, 1869, 139 (Guanajuato).

^a Eight specimens.

^b Seven specimens.

Specimens from northern and southern extremes of the range of this form average, respectively, as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at nos- trils.	Tarsus.	Middle toe.
ADULT MALES.						
Five specimens from Monterey, Nuevo Leon.....	120	132.5	25	10	38.5	21.5
Three specimens from Vera Cruz and Puebla.....	116	137	27	10.5	38	21.5
ADULT FEMALES.						
Three specimens from Monterey, Nuevo Leon.....	115	127	24	9.5	36.5	20.5
Four specimens from Vera Cruz and Puebla.....	114.5	128	25.5	10.5	38.5	22

The specimens from Nuevo Leon are practically identical with those from Vera Cruz and Puebla in coloration, in this respect differing quite obviously from Rio Grande Valley examples (*X. luxuosa glaucescens*).

- X[anthocitta] luxuosa* CABANIS, Mus. Hein., i, 1851, 224 (Mexico).
Xanthoura luxuosa luxuosa RIDGWAY, Auk, xvii, Jan., 1900, 28 (crit.).
Cyanocorax peruvianus (not *Corvus peruvianus* Gmelin) CASSIN, Proc. Ac. Nat. Sci. Phila., iv, 1848, 89 (mountains of Vera Cruz).
Corvus peruvianus (not of Gmelin) LICHTENSTEIN, Preis-Verz. Mex. Vög., 1831, 1 (Mexico).
C[yanocorax] cyanocapillus CABANIS, in Tschudi's Fauna Peruana, Aves, 1849, 233, footnote (Jalapa, Vera Cruz; coll. Berlin Mus.).

XANTHOURA LUXUOSA GLAUDESCENS Ridgway.

RIO GRANDE GREEN JAY.

Similar to *X. l. luxuosa*, but smaller (the bill especially) and coloration paler and duller; back, etc., chromium green or sage green, usually more or less glossed (often extensively) with pale blue; white of forehead usually more restricted, sometimes obsolete; prevailing color of under parts very pale glaucous-green, often glossed with pale blue; yellow of lateral rectrices, etc., rather paler.

Young.—Pileum, hindneck, and malar patch greenish blue, the forehead and palpebral spots similar but paler, and the nasal tufts darker; black of chin, throat, chest, etc., much duller than in adults; under parts of body very pale yellowish green or greenish yellow anteriorly, fading on flanks, abdomen, under tail-coverts, etc., into very pale creamy yellow; otherwise, like adults.

Adult male.—Length (skins), 256.5–277 (268); wing, 110–117.5 (113); tail, 118–131 (126); exposed culmen, 23–25.5 (25); depth of bill at nostrils, 9–10 (9.5); tarsus, 35.5–38.5 (37.5); middle toe, 20–22 (21).^a

Adult female.—Length (skins), 246.5–275.5 (258.5); wing, 104–116.5 (112); tail, 122–131.5 (127.5); exposed culmen, 24–25.5 (24.5); depth of bill at nostrils, 10; tarsus, 34–39.5 (37.5); middle toe, 19.5–22.5 (20).

Lower Rio Grande Valley, in southern Texas and northern Tamaulipas (Matamoras) and Nuevo Leon (San Diego, Rodriguez), from the coast as far up the valley as Laredo, Texas.

Cyanocorax luxuosus (not *Garrulus luxuosus* Lesson) BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 331 (Rio Grande, Texas).—CASSIN, Illustr. Birds Cal. Tex., etc., 1854, 1, part, pl. 1? (Texas).^b

Xanthoura luxuosa BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 589 (Rio Grande, Texas; Matamoras, Tamaulipas; San Diego, Nuevo Leon); Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 21 (do.); Cat. N. Am. Birds, 1859, 2, 442.—DRESSER, Ibis, 1865, 495 (lower Rio Grande Valley).—BAIRD, BREWER and RIDGWAY, Hist. N. Am. Birds, ii, 1874, pl. 42, fig. 1 (Nuevo Leon).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 483.—BENT, Life Hist. N. Am. Birds, ii, 1895, 383, pl. 3, figs. 15–17 (eggs).—NEHRLE, Our Native Birds, etc., ii, 1896, 326, pl. 32, fig. 5.—SINGLEY, Rep. Geol. Surv. Tex., 1894, 371 (Hidalgo).

X[anthoura] luxuosa RIDGWAY, Man. N. Am. Birds, 1887, 358, part.

^aSeven specimens.

^bThe plate is colored more like true *X. luxuosa*, and may have been made from a specimen of that form.

Xanthura luxuosa SHARPE, Cat. Birds Brit. Mus., iii, 1877, 132, part (Texas).—MERRILL, Proc. U. S. Nat. Mus., i, 1878, 136 (Fort Brown, Texas; habits, etc.).—SENNETT, Bull. U. S. Geol. and Geog. Surv., iv, 1878, 29 (Brownsville and Hidalgo, Texas; habits, descr. nest and eggs, measurements, etc.); v, 1879, 400 (Lomita, Texas; habits, etc.).—SCLATER, Ibis, 1879, 88, part (crit.).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 296.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1887, 502, part (Rio Grande Valley; San Diego, Nuevo Leon).

[*Xanthoura*] *yncas* var. *luxuosa* COUES, Key N. Am. Birds, 1872, 166.

Xanthoura yncas . . . var. *luxuosa* COUES, Check List, 1873, no. 238.

Xanthoura luxuosa var. *luxuosa* RIDGWAY, Am. Journ. Sci., iv, Dec., 1872, 456, part.

Xanthura yncas var. *luxuosa* MERRILL, Bull. Nutt. Orn. Club, i, Nov., 1876, 89 (near Hidalgo, Texas; descr. nest and eggs).

Xanthoura incas, var. *luxuosa* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 295, part.

[*Cyanocorax*] *luxuosus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 39, part.

[*Cyanocorax yncas*.] Var. δ . *luxuosa* DUBOIS, Bull. Ac. Roy. Belg., 2^{me} ser., xxxviii, 1874, 493, part (Texas).

Xanthura luxuriosa COUES, Check List, 2d ed., 1882, no. 358.

X[anthura] *luxuriosa* COUES, Key N. Am. Birds, 2d ed., 1884, 424.

Cyanocorax yncas (not *Corvus yncas* Boddaert) LAWRENCE, Ann. Lyc. N. Y., v, 1852, 115 (Texas).

Xanthoura luxuosa glaucescens RIDGWAY, Auk, xvii, Jan., 1900, 28 (Fort Brown, Texas; coll. U. S. Nat. Mus.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xviii, 1901, 302.—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 277.

XANTHOURA LUXUOSA VIVIDA Ridgway.

TEHUANTEPEC GREEN JAY

Similar to *X. l. luxuosa*, but larger (especially the bill); under tail-coverts pure yellow or but slightly tinged with green (instead of wholly light green); coloration in general brighter; white of forehead more extended and often tinged with yellow.

Adult male.—Length (skins), 275.5–297 (289); wing, 118–131 (122); tail, 132.5–153.5 (141.5); exposed culmen, 27–29 (28); depth of bill at nostrils, 10.5–13 (11.5); tarsus, 36–42.5 (39.5); middle toe, 20.5–24 (22.5).^a

Adult female.—Length (skins), 256.5–285 (276.5); wing, 114–123 (119.5); tail, 122.5–143 (135); exposed culmen, 25.5–26.5 (26); depth of bill at base, 10–12 (10.5); tarsus, 37–40 (38.5); middle toe, 20–21.3 (20.3).^b

Southwestern Mexico, in States of Oaxaca (St. Efigenia; Cacoprieto; Pluma; Santo Domingo), Guerrero?, Michoacan?, Chiapas (Guichicovi),^c and northwestern Guatemala (Nenton).

^a Ten specimens.

^b Five specimens.

^c No specimens have been examined from the States of Guerrero and Michoacan, but two examples from the Sierra Madre of Colima (collected by Xantus), though

(?) *Cyanocorax luxuosus* (not *Garrulus luxuosus* Lesson?) SCHLEGEL, Mus. Pays-Bas, no. 32, livr. 9, 1867, 53, part (spec. no. 3).

[*Cyanocorax*] *luxuosus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 39, part.

Xanthoura luxuosa (not *Garrulus luxuosus* Lesson) LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 285 (Sierra Madre, Colima).

Xanthura luxuosa SCLATER, Ibis, 1879, 88, part (crit.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1887, 502, part (Sierra Madre, Colima; Cacoprieto and Santa Efigenia, Oaxaca).

Xanthura guatemalensis (not of Bonaparte) LAWRENCE, Bull. U. S. Nat. Mus., no. 4, 1876, 25 (Santa Efigenia, Oaxaca).

Xanthoura luxuosa virida RIDGWAY, Auk, xvii, Jan., 1900, 28 (Pluma, Oaxaca; coll. U. S. Nat. Mus.).

XANTHOURA LUXUOSA GUATEMALENSIS (Bonaparte).

GUATEMALAN GREEN JAY.

Similar to *X. l. virida*, but under parts of body entirely yellow or but slightly tinged with green, and green of upper parts duller.

Adult male.—Length (skins), 264–284.5 (276); wing, 110–118 (114); tail, 132–139 (135); exposed culmen, 25–28 (26); depth of bill at nostril, 10.5–12 (11); tarsus, 35–40 (37); middle toe, 18–21.5 (19.5).^a

Adult female.—Length (skins), 244–272 (257); wing, 107–109 (108); tail, 119–126 (122.5); exposed culmen, 24–25 (24.5) depth of bill at base, 10–10.7 (10.2); tarsus, 34–36 (35); middle toe, 18.5–20.5 (19.5).^b

Yucatan; Campeche; eastern and central Guatemala; British Honduras; northern Honduras (San Pedro, Santa Ana, Omoa, Chamelicon, etc.)

intermediate, are rather nearer to this form than to *X. l. speciosa*, the Jaliscoan subspecies. Two fine specimens from Nenton, northwestern Guatemala, although appreciably more yellow below, are clearly referable to this type and not to the bird of central and eastern Guatemala (*X. l. guatemalensis*). It may therefore be considered as reasonably certain that the range of the present subspecies includes all of the Mexican States named above.

^a Eight specimens; five from Yucatan, three from Honduras.

^b Three specimens, from Yucatan.

Yucatan and Honduras specimens, respectively, average as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at nos- trils.	Tarsus.	Middle toe.
Five adult males from Yucatan.....	113	135	25.5	10.5	36.5	19
Three adult males from Chamelicon and Santa Ana, Honduras.....	115	134.5	27	11.5	38.5	20.5
Nine adults (none sexed) from Guatemala	112	128	26	11	37.5	22

Specimens from central Guatemala (Choctum, Vera Paz, Coban to Clusec, etc.) are less purely yellow beneath than those from Yucatan and Honduras, some specimens being quite strongly tinged with green. The three specimens from Chamelicon, Honduras, and those from Yucatan are wholly pure yellow (intermediate between Naples yellow and canary yellow) below, a few only of those from the last-named country being very slightly washed with green on sides.

X[anthoura] guatemalensis BONAPARTE, Consp. Av., i, May 6, 1850, 380 (Guatemala; see Sclater, Ibis, 1879, 88 a).

Cyanocorax guatemalensis SCLATER and SALVIN, Ibis, 1859, 22 (Cahabon, Guatemala); Proc. Zool. Soc. Lond., 1870, 837 (San Pedro, Honduras).—MOORE, Proc. Zool. Soc. Lond., 1859, 57 (Omoa, Honduras).—TAYLOR, Ibis, 1860, 113 (Honduras).—SCLATER, Cat. Am. Birds, 1862, 144 (Choctum, Vera Paz, Guatemala).

[*Xanthoura incas*] var. *guatemalensis* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 295.

Xanthoura luxuosa var. *guatemalensis* RIDGWAY, Am. Journ. Sci., iv, Dec., 1872, 456.

X[anthoura] luxuosa guatemalensis RIDGWAY, Auk, vii, Oct., 1890, 192, in text.

Xanthoura guatemalensis CHAPMAN, Bull. Am. Mus. N. H., viii, 1896, 281 (Chichen-Itza, Yucatan; crit.).

Xanthoura luxuosa guatemalensis RIDGWAY, Auk, xvii, Jan., 1900, 29 (crit.).

Cyanocorax yncas (not *Corvus yncas* Boddaert) SCHLEGEL, Mus. Pays-Bas, no. 32, livr. 9, 1867, 53, part (spec. no. 4, from Guatemala; said to be Bonaparte's type).

[*Cyanocorax yncas*.] Var. β . *cyanocapilla* (not *Cyanocorax cyanocapillus* Cabanis) DUBOIS, Bull. Ac. Roy. Belg., 2^{me} ser., xxxviii, 1874, 493, excl. syn. part (crit.; Guatemala).

Xanthura cyanocapilla SHARPE, Cat. Birds Brit. Mus., iii, 1877, 131 (Guatemala).

X[anthoura] luxuosa cyanocapilla RIDGWAY, Man. N. Am. Birds, 1887, 358.

Xanthoura luxuosa cyanocapilla STONE, Proc. Ac. Nat. Sci. Phila., 1890, 208 (Tekanto, Izamal, and Ticul, Yucatan).—LANTZ, Trans. Kans. Ac. Sci. for 1896-97 (1898), 222 (St. Tomas, Guatemala).

[*Cyanurus*] *cyanocapillus* GRAY, Hand-list, ii, 1870, 5, no. 6118 (Vera Paz, Guatemala).

Cyanocorax luxuosus (not *Garrulus luxuosus* Lesson) LAWRENCE, Ann. Lyc. N. Y., ix, 1869, 201 (Merida, Yucatan).—BOUCARD, Liste Ois. Guat., 1878, 37.

[*Cyanocorax*] *luxuosus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 39, part (Guatemala; Honduras).

Xanthura luxuosa SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1887, 502, part (Merida, Yucatan; Belize, British Honduras; Cahabon, Yzabal, Choctum, Zapote, Savana Grande, Rio Chiguati, Patio Bolas, and Retalhuleu, Guatemala; Omoa and San Pedro, Honduras).

XANTHOURA LUXUOSA SPECIOSA Nelson.

JALISCOAN GREEN JAY.

Similar to *X. l. virida*, but larger (except bill and feet); palpebral spots white or bluish white, instead of rich blue; forehead yellowish white or light yellow, this more extended than the white in *X. l. virida*, and extended backward, more or less distinctly, along edges of the blue occipital and nuchal patch; occiput, nape, and hindneck much paler blue than in *X. l. virida* (pale campanula or purplish azure instead of rich campanula or almost small blue), the hindneck paler than occiput, and all the feathers of this blue area distinctly pale

^a Dr. Sclater's argument against the applicability of the name to the present form is, however, quite untenable, some examples having the under parts exactly as purely and wholly yellow as the Venezuelan bird (*X. yncas chloronota*), to which Dr. Sclater thinks the above name referable.

yellow at bases; black jugular patch bordered posteriorly by a conspicuous curved band of clear lemon or deep canary yellow, confluent in the middle portion with a longitudinal area of the same color occupying the median portion of breast and abdomen, both strongly, though not sharply, contrasted with the general light apple green color of the under parts of the body; sides of neck, behind black auricular area, distinctly and more or less extensively yellow, this confluent with the above-mentioned post-jugular collar.

Adult male.—Length (skins), 297–309.5 (301.5); wing, 124–125 (124.5); exposed culmen, 26.5–29 (28); depth of bill at nostrils, 10.5–12 (11.5); tarsus, 40–41.5 (40.5); middle toe, 21–24 (23).^a

Adult female.—Length (skins), 279.5–294.6 (287); wing, 120–124 (122); tail, 129.5–138.5 (134); exposed culmen, 26–27 (26.5); depth of bill at nostrils, 10.5–11 (10.9); tarsus, 39.8–40.6 (40.4); middle toe, 21.5–22.1 (21.8).^b

State of Jalisco, southwestern Mexico (San Sebastian).

Xanthoura luzuoma speciosa NELSON, Auk, xvii, July, 1900, 265 (San Sebastian, Jalisco; coll. U. S. Nat. Mus.).

Genus CISSILOPHA Bonaparte.

Cissilopha BONAPARTE, CONSP. AV., i, May, 1850, 380. (Type, *Pica san-blasiana* Lafresnaye.)

Cissolopha (emendation) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 592.

Rather large Garrulinæ (wing more than 127), with the head, neck, and at least anterior half of the under parts uniform black, the rest of the plumage blue (in some species with white spots at tips of rectrices in female or young).

Nidification.—(Essentially as in related genera.)

Range.—Mexico to northern Nicaragua.

This genus is rather difficult to characterize, for the reason that, while the style of coloration is remarkably uniform and distinctive, no two of the species agree exactly in structural details. All are very stout-billed, except *C. melanocyanea*, which further differs from the rest in having the feathers of the pileum much developed, especially on the occiput, forming, when erected, a bushy crest, and also in having the posterior half of the under parts blue. *C. san-blasiana* has a slender median crest on the forehead composed of narrow, nearly straight, elongated feathers. *C. beecheii* and *C. yucatanica* are without any crest. *C. san-blasiana* has the nostrils wholly exposed; in *C. yucatanica* they are partly exposed, the nasal plumes being very short; while in *C. beecheii* and *C. melanocyanea* the nasal plumes are longer, quite covering the nostrils. The wing is decidedly more rounded in *C. melanocyanea* than in the others, the sixth, fifth, fourth,

^aThree specimens.

^bTwo specimens.

and third primaries being longest, instead of the seventh, sixth, fifth, and fourth, as in the other three.

Any further subdivision would, however, hardly be justifiable, except possibly in the case of *C. melanocyaneus*, which differs in more respects from any of the other species than any two of them do from one another.

KEY TO THE SPECIES AND SUBSPECIES OF *CISSILOPHA*.

- a. A distinct frontal crest of narrow, nearly straight, feathers; nostrils largely exposed. (*Cissilopha san-blasiana*.)
 - b. Back, etc., bright cerulean blue. (States of Jalisco and Colima and Territory of Tepic, southwestern Mexico.)...*Cissilopha san-blasiana san-blasiana* (p. 313)
 - bb. Back, etc., bright cobalt or ultramarine blue. (State of Guerrero, southwestern Mexico.).....*Cissilopha san-blasiana pulchra* (p. 314)
- aa. No frontal crest, but feathers of whole pileum more or less elongated; nostrils mostly or wholly concealed.
 - b. Under parts entirely black, except thighs and under tail-coverts; feathers of pileum only slightly elongated, not forming a distinct crest.
 - c. Nostrils partly exposed; back, etc., light cerulean or turquoise blue; smaller (wing less than 203).
 - d. Bill black; rectrices without white terminal spots. (Yucatan; eastern Guatemala; British Honduras.)...*Cissilopha yucatanica*, adult male, (p. 315)
 - dd. Bill yellow; rectrices with white terminal spots.
 - Cissilopha yucatanica*, young (p. 315)
 - cc. Nostrils wholly covered; back, etc., rich smalt blue; larger (wing more than 203). (States of Sinaloa and Sonora, northwestern Mexico.)
 - Cissilopha beecheii* (p. 316)
 - bb. Under parts dull blue posterior to chest; feathers of pileum distinctly elongated, forming a bushy, decumbent crest. (Guatemala, Salvador, Honduras, and northern Nicaragua.).....*Cissilopha melanocyaneus* (p. 317)

CISSILOPHA SAN-BLASIANA SAN-BLASIANA (Vigors).

SAN BLAS JAY.

Adults (sexes alike).—Entire head, neck, upper portion of back, and under parts, except thighs and under tail-coverts, uniform black; thighs and under tail-coverts dull or dusky ultramarine blue; upper parts (except of pileum, hindneck, and upper back) uniform bright cerulean or sevrès blue, more greenish on wings (verditer blue on tertials), the tail cobalt or almost ultramarine blue; under surface of remiges and rectrices slate-black; bill black; iris brown; legs and feet (in dried skins) horn color.

Young.—Similar to adults, but black of under parts duller (sometimes tinged with dull blue), feathers of hinder crown and occiput more or less tinged or tipped with blue, and bill partly (sometimes wholly) yellowish or flesh colored.

Adult male.—Length (skins), 274.5–305 (294.5); wing, 135–139.5 (137); tail, 137.5–145 (142); exposed culmen, 30–31 (30.5); depth of bill

at nostrils, 12.5–14 (13.5); tarsus, 40–42 (40.9); middle toe, 25–26.5 (25.5).^a

Adult female.—Length (skins), 266.5–317.5 (297.5); wing, 127–142 (134.5); tail, 134.5–151 (143.5); exposed culmen, 28.5–30.5 (30); depth of bill at nostrils, 12.5–14 (13); tarsus, 38.5–41 (39.5); middle toe, 23–26.5 (25).^b

States of Jalisco and Colima and Territory of Tepic, southwestern Mexico.

Pica san-blasiana LAFRESNAYE, Mag. de Zool., 2^e sér., année 1842, Ois., 1, 2, pl. 28 (San Blas, Jalisco, s. w. Mexico; *Geai de San-Blas* Néboux, Rev. Zool. 1840, 290, 323).

C[yanocorax] sanblasianus GRAY, Gen. Birds, ii, 1849, 307.

[Cissilopha] sanblasianus BONAPARTE, Consp. Av., i, 1850, 380 ("California")¹.

Cissolopha sanblasianus LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 284 (plains of Colima, Manzanilla Bay, and Los Trochos, Colima).—STONE, Proc. Ac. Nat. Sci. Phila., 1891, 444.

Cissilopha sanblasiana COUES, Bull. U. S. Nat. Mus., no. 7, 1877, 11 (Mita Point, "Sinaloa," i. e., Territory of Tepic).

Cissolopha sanblasiana BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 592 (San Blas).

C[issolopha] sanblasiana RIDGWAY, Man. N. Am. Birds, 1887, 350, footnote.

[Cyanurus] sanblasianus GRAY, Hand-list, ii, 1870, 4, no. 6091.

Cyanocitta sanblasiana SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1876, 269 (crit.).

Xanthura sanblasiana SHARPE, Cat. Birds Brit. Mus., iii, 1877, 132 (w. Mexico).

Cyanolyca sanblasiana SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1887, 496, part (San Blas; plains of Colima; Manzanilla Bay; Los Trochos).

[Cyanurus] geoffroyi (not *Cyanocorax geoffroyi* Bonaparte) GRAY, Hand-list, ii, 1870, 4, no. 6094 ("California;" fide Sharpe).

CISSILOPHA SAN-BLASIANA PULCHRA (Nelson).

ACAPULCO JAY.

Similar to *C. s. san-blasiana*, but tail decidedly longer and color of back, etc., rich ultramarine blue, deepening into smalt or cyanine blue on tail; under tail-coverts and thighs cyanine blue.

Adult male.—Length (skins), 324–330 (328); wing, 135–144 (138.5); tail, 146–159 (153); exposed culmen, 30–32 (31); depth of bill at nostrils, 13.5; tarsus, 40.5–42.5 (41.5); middle toe, 23.5–26.5 (25).^c

State of Guerrero, southwestern Mexico.

Pica san-blasiana, part, LAFRESNAYE, Mag. de Zool., 2^e sér., année 1842, Ois., 1, 2, part (Acapulco).

Cissolopha pulchra NELSON, Auk, xiv, Jan., 1897, 56 (Acapulco, Guerrero, s. w. Mexico; coll U. S. Nat. Mus.).

^a Five specimens.

^b Seven specimens.

^c Three specimens.

CISSILOPHA YUCATANICA (Dubois).

YUCATAN JAY.

Adults (sexes alike).—Head, neck, and under parts uniform black, the latter passing into dusky blue on under tail-coverts; upper parts (except pileum and hindneck), bright cerulean or deep turquoise blue, the tail deeper blue (approaching cobalt), and the tertials more greenish (glaucous-blue or verditer blue); bill black; legs and feet yellow.

Immature.—Similar to adults, but bill yellow, rectrices (except middle ones) more or less broadly tipped with white, and black of under parts rather duller, with thighs and under tail-coverts more distinctly bluish.

Adult male.—Length (skins), 310.5–326.5 (320.5); wing, 137–147.5 (141); tail, 134.5–150 (142.5); bill from nostril, 21–23 (22.5); depth of bill at nostrils, 12–13 (12.5); tarsus, 40.5–43.5 (42); middle toe, 23.5–25.5 (24.5).^a

Adult female.—Length (skins), 317.5–330 (325); wing, 137–143 (139.5); tail, 134.5–148.5 (141.5); bill from nostril, 21.5–23 (22.5); depth of bill at nostrils, 12.5–13 (12.7); tarsus, 39.5–42 (41); middle toe, 24–25.5 (25).^b

Yucatan (including Meco and Mugerres islands); British Honduras; eastern Guatemala (Peten district); State of Tabasco (Frontera) south-eastern Mexico.

[*Cyanocitta*] *beachii* (not *Pica beecheii* Vigors) BONAPARTE, Consp. Av., i, 1850, 378 (excl. syn.).

Corvus (*Pica*) *beecheii* EYDOUX and GERVAIS, Mag. de Zool., 1836, pl. 72; Voy. "Favorite," 1839, pl. 20.

Cyanocitta crassirostris (not of Bonaparte) PUCHERAN, Rev. Zool., 1858, 196 (Old R., British Honduras).—MOORE, Proc. Zool. Soc. Lond., 1859, 57 (near Belize, British Honduras).—SALVIN, Ibis, 1861, 353 (Guatemala; Belize, British Honduras).—LAWRENCE, Ann. Lyc. N. Y., ix, 1869, 201 (Merida, Yucatan).

[*Cyanocitta*] *crassirostris* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 39 (Belize, British Honduras; Yucatan).

[*Cyanurus*] *crassirostris* GRAY, Hand-list, ii, 1870, 5, no. 6103.

Cyanocitta yucatanica DUBOIS, Bull. Ac. Roy. Belg., 2^{me} ser., xl, no. 12, Dec., 1875, 13, 16 (Yucatan; coll. Brussels Mus.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1887, pl. 35.

Xanthura yucatanica SHARPE, Cat. Birds Brit. Mus., iii, 1877, 133 ("Honduras"; Yucatan).

Cyanolyca yucatanica SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1887, 498 (Meco and Mugerres islands, Yucatan; Old River, British Honduras).

Cissolopha yucatanica STONE, Proc. Ac. Nat. Sci. Phila., 1890, 208 (Shkolak, etc., Yucatan); 1891, 444.—CHAPMAN, Bull. Am. Mus. N. H., viii, 1896, 282 (Chichen-Itza, Yucatan; habits; crit.).

Cyanocitta germana SCLATER and SALVIN, Proc. Zool. Soc. Lond., Feb. 15, 1876, 270 (Belize, British Honduras; coll. Salvin and Godman).

Corvus cimiciphagus DONDÉ, La Emulacion, iii, no. 16, 1878, 13 (Yucatan).

^a Six specimens.

^b Four specimens.

CISSILOPHA BEECHEII (Vigors).

BEECHEY'S JAY.

Adults (sexes alike).—Head, neck, and under parts (except thighs and under tail-coverts) uniform black; thighs and under tail-coverts dull hyacinth or dark cyanine blue; upper parts (except pileum and hindneck) uniform rich smalt blue; under surface of wings and tail slate-black; bill usually black, sometimes yellow; iris yellow;^a legs and feet yellow. (Young not seen.)

Adult male.—Length (skins), 362–413 (380); wing, 164.5–175 (171); tail, 176.5–199 (187.5); bill from nostril, 27–30.5 (28); depth of bill at nostrils, 14–15.5 (14.5); tarsus, 48.5–50 (49.5); middle toe, 28.5–30.5 (30).^b

Adult female.—Length (skins), 345.5–368.5 (354.5); wing, 155.5–171.5 (167); tail, 165–186.5 (179.5); bill from nostril, 25–27.5 (26.5); depth of bill at nostrils, 14.5–15.5 (15); tarsus, 47–52 (50); middle toe, 27.5–31 (29.5).^c

States of Sinaloa (Mazatlan, Culiacan, etc.) and southern Sonora (north to Alamos), northwestern Mexico; State of Jalisco (San Blas).^d

Pica beecheyi VIGORS, Zool. Journ., iv, Jan., 1829, 353 (Monterea^d, s.w. Mexico); Zool. Voy. "Blossom," 1839, 22, pl. 6.

Pica beecheyi BAIRD, in Stansbury's Great Salt Lake, 1853, 333 (Monterey).

C[yanolyca] beecheyi CABANIS, Mus. Hein., i, Oct., 1851, 223, footnote.

Cyanolyca beecheyi SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1887, 497 (Mazatlan and Tres Marias, Sinaloa; San Blas, Colima).—LANTZ, Trans. Kans. Ac. Sci. for 1896–97 (1899), 222 (Culiacan, Sinaloa).

[*Cyanocitta*] *beecheyi* BONAPARTE, Consp. Av., i, 1850, 378 ("Monterey").

Cyanocorax beecheyi SCHLEGEL, Mus. Pays-Bas, Coraces, 1867, 44 ("California").—FINSCH, Abh. nat. Verh. Brem., i, 1870, 333 (Mazatlan).

[*Cyanurus*] *beecheyi* GRAY, Hand-list, ii, 1870, 4, no. 6101 ("California;" w. Mexico).

Cyanocitta beecheyi SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1876, 269, 270 (crit.).

Cyanocitta beecheyi LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 283 (Mazatlan; "Tres Marias"; habits).

Cyanocitta beecheyi BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 592.

Xanthura beecheyi SHARPE, Cat. Birds Brit. Mus., iii, 1877, 133 (n. w. Mexico).

[*Cyanocitta*] *beecheyi* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 39 (w. Mexico).

C[issolopha] beecheyi RIDGWAY, Man. N. Am. Birds, 1887, 350, footnote, in text.

Cissolopha beecheyi NELSON, North Am. Fauna, no. 14, 1899, 50 (Tres Marias, tide Xantus; doubtful!).

Cissolopha beecheyi STONE, Proc. Ac. Nat. Sci. Phila., 1891, 444.

^a"Iris and feet gamboge yellow" (Xantus, manuscript).

^bSix specimens.

^cFour specimens.

Two specimens from Alamos, Sonora, have much more slender bills than any from the State of Sinaloa, but I am not able to discern any other difference.

^dI have not been able to identify this locality.

C[yanocitta] crassirostris BONAPARTE, Consp. Av., i, 1850, 378 ("Mexico orientale").

Cyanocorax geoffroyi BONAPARTE, Compt. Rend., xxxi, 1850, 564 (San Blas, Jalisco; coll. Paris Mus.).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 592.

[*Cyanocitta*] *geoffroyi* BOUCARD, Catalog. Avium, 1876, 279, no. 8736.

CISSILOPHA MELANOCYANEA (Hartlaub).

HARTLAUB'S JAY.

Adults (sexes alike).—Head, neck, chest, and breast uniform black; back, scapulars, rump, and wings uniform verditer blue, varying to cerulean blue; upper tail-coverts and tail deeper and less greenish (cerulean to almost cobalt) blue; abdomen, sides, flanks, and under tail-coverts dull grayish blue; bill black, sometimes (in younger individuals?) partly yellow; iris yellow;^a legs and feet black or yellow.

Adult male.—Length (skins), 279.5–297 (288); wing, 130–139 (135); tail, 142–153.5 (149.5); exposed culmen, 26.5–28.5 (28); depth of bill through nostrils, 11–12.5 (11.5); tarsus, 38.5–42 (40); middle toe, 24–25.5 (24.5).^b

Adult female.—Length (skin), 320; wing, 133.5; tail, 155; exposed culmen, 25.5; tarsus, 38.5; middle toe, 22.5.^c

Highlands of Guatemala (up to 8,000 feet), Salvador, Honduras, and northern Nicaragua (Chontales).

[I have not seen a young bird in first plumage, but have examined several that are evidently less than a year old. These have the bill mostly yellow, and the black of the head, etc., less intense.

Two specimens labeled as from Honduras are quite like Guatemalan examples; but a third,^d also said to be from Honduras, is so different in coloration from all the other specimens examined (eleven in number) that I suspect it may have come from some different district of Honduras from the other specimens mentioned. In this example, the back, rump, and upper tail-coverts are bright cerulean blue, deepening into cobalt on the tail, instead of verditer blue and dull cerulean blue, respectively, as in true *C. melanocyaneus*, while the under parts of the body are dusky cobalt blue instead of grayish glaucous-blue or dull grayish cerulean blue. It thus appears to agree with a specimen from Chontales, Nicaragua, mentioned by Salvin and Godman (Biol. Centr.-Am., Aves, i, p. 499), which "is darker, as regards the blue colour" than any Guatemalan example examined by those authors; hence it seems not improbable that northern Nicaragua and adjacent parts of Honduras may be the home of a darker race of this species.

^a Heyde and Lux, manuscript; a specimen with bill partly yellow and probably a younger bird, though in fully adult plumage, had the irides "light brown."

^b Three specimens.

^c One specimen.

^d No. 42292, coll. Am. Mus. Nat. Hist. (Lawrence collection), Honduras; A. Edwards.

A specimen from Salvador in the National Museum collection agrees in color with Guatemalan specimens.]

Garrulus (Cyanocorax) melanocyaneus HARTLAUB, Rev. Zool., 1844, 215 (Guatemala).

C[yanolyca] melanocyanea CABANIS, Mus. Hein., i, Oct., 1851, 223, footnote.

Cyanolyca melanocyanea SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1887, 498 (Dueñas, Volcan de Fuego up to 8,000 ft., Santa Maria, below Quezaltenango, San Gerónimo, Tactic, and Coban, Guatemala; bet. Seguatepeque and Taulevi, Honduras; Chontales, Nicaragua).—LANTZ, Trans. Kans. Ac. Sci. for 1896-97 (1899), 222 (Palin and Amatitlan, Guatemala).

[*Cyanocitta*] *melanocyaneus* BONAPARTE, Consp. Av., i, 1850, 378 (Guatemala).

Cyanocitta melanocyaneus SCLATER and SALVIN, Ibis, 1859, 21, pl. 5, fig. 6 (Dueñas, Guatemala; descr. eggs).—SCLATER, Cat. Am. Birds, 1862, 144 (Guatemala); Ibis, 1873, 373 (Chontales, Nicaragua).—OWEN, Ibis, 1861, 63 (San Gerónimo, Guatemala).—BOUCARD, Liste Ois. Guat., 1878, 37.

[*Cyanocitta*] *melanocyanea* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 39 (Guatemala).

Cyanocorax melanocyaneus SCLATER, Proc. Zool. Soc. Lond., 1858, 359 (between Seguatepeque and Taulevi, Honduras).—TAYLOR, Ibis, 1860, 112 (Honduras).—SCHLEGEL, Mus. Pays-Bas, Coraces, 1867, 45 ("Colombia;" Guatemala?).

[*Cyanurus*] *melanocyaneus* GRAY, Hand-list, ii, 1870, 4, no. 6102 (Guatemala).

Xanthura melanocyanea SHARPE, Cat. Birds Brit. Mus., iii, 1877, 134, pl. 6 (Coban, Guatemala).

Cissolopha melanocyanea STONE, Proc. Ac. Nat. Sci. Phila., 1891, 444 (Coban).

Genus CYANOLYCA Cabanis.

Cyanolyca CABANIS, Mus. Hein., i, Oct., 1851, 223. (Type, *Cyanocorax armillatus* Gray and Mitchell.)

Neotropical Garrulinæ with nasal tufts and sides of head black, conspicuously contrasted with the color (blue or lavender) of the pileum or throat, and with the frontal feathers more or less erect and bristly.

Vidification.—(Unknown.)

Range.—Southeastern Mexico to Peru, Bolivia, and Venezuela. (Nine species.)

The above imperfect diagnosis characterizes a group of Neotropical jays which are obviously related to one another more closely than to any others, the very considerable difference between certain specific types rendering a more satisfactory diagnosis difficult. It may be found necessary to subdivide the group and restrict the generic name *Cyanolyca* to *C. armillata* and its nearer allies (*meridana*, *quindina*, *turcosa*, *jolyæa*, and *viridicyanea*); but in this case it would be necessary to make three additional genera for the four Central American species, only two of which (*C. ornata* and *C. cucullata*) are closely allied.

Cyanolyca is related to *Aphelocoma* through two small species of southern Mexico and Guatemala (*C. nana* and *C. punilo*), which with the coloration of *Cyanolyca* have the more slender form of *Aphelocoma*.

"Von κυάνεος, blan, und λίκος, Dohle."

KEY TO THE SPECIES AND SUBSPECIES OF CYANOLYCA.

- a. Throat bluish or silvery, abruptly contrasted both with black on sides of head and color of chest.
 - b. Chest bicolored (blue, crossed above by a band of black or white). (South American species, except *C. pulchra*.)
 - bb. Chest unicolored (brown, black, or dull grayish blue).
 - c. Back and chest sooty brown; whole crown very pale blue or bluish white; throat purplish blue. (*Cyanolyca pulchra*.^a)
 - cc. Back and chest black or blue; only part of the crown (if any) bluish; throat silvery white or pale purplish blue.
 - d. Pileum and back black or dusky blue; chest black; depth of bill at nostrils 9 or more. (Highlands of Costa Rica, Chiriqui, and Veragua.)
Cyanolyca argentigula (p. 319)
 - dd. Pileum, back, and chest blue; depth of bill at nostrils not more than 8. (Southeastern Mexico.) *Cyanolyca nana* (p. 320)
- aa. Throat black or very dark blue, not abruptly contrasted (sometimes concolor) with black of sides of head and color of chest.
 - b. Bill slender (depth at nostrils not more than 10); chest and hindneck blue; crown and occiput purplish blue, like hindneck. (Guatemala; State of Chiapas, southern Mexico.) *Cyanolyca pumilo* (p. 321)
 - bb. Bill stouter (depth at nostrils not less than 10.5); chest and hindneck black; crown and occiput azure blue, abruptly defined.
 - c. Light blue occipital patch margined laterally with white; neck brownish black or blackish brown. (Southern Mexico; Guatemala.)
Cyanolyca mitrata (p. 322)
 - cc. Light blue occipital patch not margined laterally with white; neck black. (Highlands of Costa Rica and Chiriqui.) *Cyanolyca cucullata* (p. 323)

CYANOLYCA ARGENTIGULA (Lawrence).

SILVERY-THOATED JAY.

Adults (sexes alike).—Head, neck, and chest black; anterior portion of crown crossed by a band (about 6.3–7.6 wide) of pale grayish lavender or silvery white, extending from each extremity backward in a narrow stripe, along each side of the crown and occiput to about the end of the auricular region, the posterior portion of this streak of a deeper lavender hue; entire throat (but not chin) pale lavender or silvery white, forming a very conspicuous, sharply defined patch, broader at its posterior extremity, where very sharply defined, with a convex outline; lower back, scapulars, rump, upper tail-coverts, and under parts posterior to chest dusky purplish blue, gradually shading into the black anteriorly; wings and tail dull smalt or cyanine blue, their under surface grayish black; bill, legs, and feet black.

Young.—Similar to the adults, but the lavender marking on top of head wanting or but slightly indicated, the whole crown and occiput being dusky purplish blue.

^a *Cyanocitta pulchra* Lawrence, Ann. Lyc. Nat. Hist. N. Y., xi, 1875 (pub. Feb., 1876), 163 (Quito, Ecuador; coll. G. N. Lawrence).—Sclater and Salvin, Proc. Zool. Soc. Lond., 1876, 272 (crit.).—Taczanowski and Berlepsch, Proc. Zool. Soc. Lond., 1885, 116 (Quito).

Adult male.—Length (skins), 250–255 (252.2); wing, 122–125 (123); tail, 130–131 (130.5); exposed culmen, 22.5–26 (24.2); depth of bill at nostrils, 9.5–10 (9.7); tarsus, 35–36 (35.5); middle toe, 20.5–21 (20.7).^a

Adult female.—Length (skins), 245–250 (247.2); wing, 117.5–124 (119.8); tail, 125.5–131 (128.5); exposed culmen, 23–24 (23.5); depth of bill at nostrils, 10–10.5 (10.2); tarsus, 34.5–36 (35.2); middle toe, 18.5–19.5 (19.2).^b

Eastern Costa Rica (Talamanca; Volcan de Irazú) and Chiriqui (Volcan de Chiriqui, Caribbean slope, 7,000 to 9,000 feet).

Cyanocitta argentigula LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., xi, Feb., 1875, 88 (Talamanca, Costa Rica; coll. U. S. Nat. Mus.).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1876, 268 (crit.).—ZELEDON, Cat. Aves de Costa Rica, 1882, 10.

Cyanocorax argentigula SHARPE, Cat. Birds Brit. Mus., iii, 1877, 128.—ZELEDON, Anal. Mus. Nac. Costa Rica, i, 1887, 113 (Faldas de Volcan de Irazú).—RIDGWAY, Proc. U. S. Nat. Mus., xi, 1889, 541 (Irazú; descr. adults and young; crit.).

Cyanolyca argentigula SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, Apr., 1887, 501, pl. 34.—BANGS, Proc. New Engl. Zool. Club, iii, 1902, 57 (Volcan de Chiriqui, 9,000 ft.).

CYANOLYCA NANA (Du Bus).

DWARF JAY.

Adult male.—Above plain grayish blue, brighter and more purplish blue on pileum, the forehead and a narrow stripe thence backward above upper margin of the black orbital and auricular patch more or less distinctly, but not abruptly, paler (flax-flower) blue; chin, nasal tufts, and entire loreal, orbital, auricular, and malar regions uniform black, forming a conspicuous and sharply defined patch covering sides of head; entire throat pale grayish purplish blue (purplish pearl blue); remaining under parts dull grayish blue, paler posteriorly, darker anteriorly, deepening on upper chest (next to pale bluish throat-patch) into dusky blue; under surface of wings and tail sooty slate color; bill, legs, and feet black; length (skins), 213.5–236 (224.5); wing, 109–117.5 (113); tail, 110.5–117.5 (112.5); exposed culmen, 17.5–20.5 (18.5); depth of bill at nostrils, 7–8 (7.5); tarsus, 30.5–33 (32); middle toe, 15–18 (17).^c

Adult female.—Similar to adult male, but smaller and duller in color; length (skin), 208; wing, 107; tail, 106.5; exposed culmen, 16.5; depth of bill at nostrils, 7; tarsus, 28.5; middle toe, 15.^d

Young.—Similar to adult female, but with the pale throat-patch much less distinct and more restricted, shading gradually posteriorly

^a Two specimens, from Volcan de Chiriqui (Caribbean slope).

^b Three specimens; two from Volcan de Chiriqui, one from Talamanca, Costa Rica.

^c Five specimens.

^d One specimen.

into the dull bluish of lower throat and chest; dull blue of pileum without any lateral paler stripe, and forehead same color as crown.

Southeastern Mexico, in States of Vera Cruz (mountain district), Mexico, and Oaxaca (Llano Verde; Mount Zempoaltepec; Reyes).

Cyanocorax nanus DU BUS, Bull. Ac. Roy. Brux., xiv, pt. ii, 1847, 103 (Mexico; coll. Brussels Mus.); Rev. Zool., 1848, 243; Esquis. Orn., 1848, pl. 25.—SCLATER, Proc. Zool. Soc. Lond., 1857, 204 (Jalapa, Vera Cruz); 1859, 365 (do.).—SCHLEGEL, Mus. Pays-Bas, Coraces, 1867, 49 (Mexico).

[*Cyanocitta*] *nanus* BONAPARTE, Consp. Av., i, 1850, 378 (Mexico).

Cyanocitta nana SCLATER, Proc. Zool. Soc. Lond., 1859, 381 (Llano Verde, Oaxaca); Cat. Am. Birds, 1862, 143 (Jalapa).—SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 554 (alpine reg. Vera Cruz).

[*Cyanocitta*] *nana* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 39.

[*Cyanurus*] *nanus* GRAY, Hand-list, ii, 1870, 5, no. 6108 (Jalapa).

Aphelocoma nana SHARPE, Cat. Birds Brit. Mus., iii, 1877, 118 (Cordova, Vera Cruz).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1887, 495 (near City of Mexico, etc.).

Cyanolyca nana STONE, Proc. Ac. Nat. Sci. Phila., 1891, 444 (Jalapa).

CYANOLYCA PUMILO (Strickland).

STRICKLAND'S JAY.

Adult male.—Nasal tufts, forehead, and loreal, orbital, auricular, and malar regions uniform black, this black area margined above by a line of white crossing the hinder part of the forehead and extending thence backward along sides of crown and occiput to end of auricular region; crown and occiput dull ultramarine or cobalt blue, the remaining upper parts less purplish blue (dull cerulean blue on wings and tail); under parts uniform blue (similar to upper parts, but slightly paler and duller), deeper and more purplish blue on chest, this shading into dull black on throat and chin; under surface of wings and tail slaty black; bill, legs, and feet black; length (skin), 256.5; wing, 119; tail, 120.5; exposed culmen, 24; depth of bill at nostrils, 10; tarsus, 33.5; middle toe, 20.^a

Adult female.—Sometimes quite indistinguishable from the adult male in coloration, but averaging slightly smaller and usually with the blue of a slightly more greenish hue (inclining more or less to verditer blue on under parts, etc.); length (skins), 232.5–238.5 (235); wing, 109.5–117 (112.5); tail, 108.5–117 (113); exposed culmen, 20–20.6 (20.3); depth of bill at nostrils, 8–9.5 (9); tarsus, 29.5–33 (31.5); middle toe, 17–17.9 (17.5).^b

Young.—Similar to adults, but with the black portions of head and throat replaced by dull dusky grayish, and without the white line across forehead and along sides of crown.

Highlands of Guatemala and State of Chiapas (Tumbala) southern Mexico.

^a One specimen.

^b Three specimens.

- Cyanocorax nanus?* (not of Du Bus) STRICKLAND, in Jardine's Contr. Orn., 1849, 122, pl. 33 (Guatemala).
Cyanocorax pumilo STRICKLAND, in Jardine's Contr. Orn., 1849, 122, in text (Guatemala; coll. H. E. Strickland).—SHARPE, Cat. Birds Brit. Mus., ii, 1877, 127 (Coban, Vera Paz, Guatemala).
C[yanocorax] pumilo SCLATER, Proc. Zool. Soc. Lond., 1857, 204 (crit.).
[Cyanocitta] pumilo BONAPARTE, Consp. Av., i, 1850, 378.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 39 (Guatemala).
Cyanocitta pumilo SCLATER and SALVIN, Ibis, 1859, 21 (Guatemala).—SALVIN, Cat. Strickland Coll., 1882, 292.
[Cyanurus] pumilio GRAY, Hand-list, ii, 1878, 5, no. 6107.
Cyanolyca pumilo SALVIN and GODMAN, Biol. Centr.-Am., Aves., i, Apr., 1887, 500 (Calderas, Volcan de Fuego, Sierra de las Nubes, and San Pedro Carcha, Guatemala).

CYANOLYCA MITRATA Ridgway.

AZURE-HOODED JAY.

Adults (sexes alike).—A broad patch covering the occiput and posterior half of crown (wider posteriorly), light azure blue, paler (sometimes silvery white) anteriorly, and margined along each side by a line of white, which at its posterior extremity curves downward behind the auriculars; rest of the head and neck, all round, uniform black, more or less brownish posteriorly, where, on chest and upper back, the brownish black merges gradually into dull cyanine blue, and this into the general dull french blue of the upper and under parts; under surface of wings and tail grayish black; bill, legs, and feet black; length (skins), 266.5–317.5 (289); wing, 125.5–139 (133.5); tail 132–148.5 (139); exposed culmen, 22.5–25.5 (23.5); depth of bill through nostrils, 11–11.5 (11.3); tarsus, 39.5–43 (41.9); middle toe 20.5–23 (21.5).^a

Southeastern Mexico, in States of Vera Cruz (temperate region), Oaxaca, and Chiapas; Guatemala; northern Honduras?

- Pica ornata* (not of Wagler, 1829 ^b) LESSON, Rev. Zool., 1839, 41 (Mexico).
[Cyanocorax] ornatus GRAY, Gen. Birds, ii, 1845, 307.
Cyanocorax ornatus SCLATER, Proc. Zool. Soc. Lond., 1857, 204 (Jalapa, Vera Cruz); 1859, 365 (do.).—SCHLEGEL, Mus. Pays-Bas, Coraces, 1867, 47 (Mexico).—SHARPE, Cat. Birds Brit. Mus., iii, 1877, 127, part (Jalapa; Guatemala).—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 153 (Jalapa).—RIDGWAY, Proc. U. S. Nat. Mus., ix, 1886, 153 (Jalapa; crit.).—STONE, Proc. Ac. Nat. Sci. Phila., 1891, 443 (Jalapa).
[Cyanocitta] ornata BONAPARTE, Consp. Av., i, 1850, 379.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 39, part (Mexico; Guatemala).
Cyanocitta ornata SCLATER and SALVIN, Ibis, 1859, 21 (Cahabon, Guatemala; Honduras).—SCLATER, Proc. Zool. Soc. Lond., 1859, 381 (Teotalsin, Oaxaca); 1864, 175 (Valley of Mexico); Cat. Am. Birds, 1862, 143 (Jalapa; Coban, Guatemala).—SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 52 (temperate reg., Vera Cruz).—BOUCARD, Liste Ois. Guat., 1878, 37.

^a Eleven specimens. So few of the specimens have the sex determined that I am unable to indicate the sexual difference in measurements.

^b Isis, 1829, 749; India orientale; (= *Cissa ornata*).

[Cyanolyca] ornata CABANIS, Mus. Hein., i, Oct., 1851, 223 (Mexico).

Cyanolyca ornata SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1887, 499.—CHAPMAN, Bull. Am. Mus. N. H., x, 1898, 30 (Jalapa).—LANTZ, Trans. Kans. Ac. Sci. for 1896-97 (1899), 222 (Coatepec, Vera Cruz).

[Cyanurus] ornatus GRAY, Hand-list, ii, 1870, 4, no. 6099 (Mexico).

[Cyanocitta] cyanicollis LICHTENSTEIN, Nomencl. Av. Mus. Berol., 1854, 9 (Mexico; nomen nudum!).

Cyanolyca mitrata RIDGWAY, Auk, xvi, July, 1899, 255 (to replace preoccupied name *ornata*).

CYANOLYCA CUCULLATA (Ridgway).

COSTA RICAN AZURE-HOODED JAY.

Similar to *C. mitrata*, but slightly smaller, blue hood without any lateral white margin, and hindneck deeper (less brownish) black.

Adult male.—Length (skins), 250-260 (254); wing, 116-120 (118); tail, 122.5-129 (127.1); exposed culmen, 24-27.5 (26.1); depth of bill at nostrils, 12-12.5 (12.2); tarsus, 36-39 (37.5); middle toe, 21-21.5 (21.4).^a

Eastern Costa Rica (Navarro, El Zarcero de Alajuela, Rio Sucio, etc.); Veragua (Chitra); Chiriqui (Volcan de Chiriqui, 7,000 ft.); Isthmus of Panama.

Cyanocitta ornata (not *Pica ornata* Lesson) SALVIN, Ibis, 1870, 114 (Costa Rica).—ZELEDON, Cat. Aves de Costa Rica, 1882, 10.

[Cyanocitta] ornata SCLATER and SALVIN, Nom. Av. Neotr., 1873, 39, part (Costa Rica).

Cyanocorax ornatus (not of Gray) SHARPE, Cat. Birds Brit. Mus., iii, 1877, 127, part (Veragua).

Cyanocorax cucullatus RIDGWAY, Proc. U. S. Nat. Mus., viii, Apr. 20, 1885, 23 (Navarro, e. Costa Rica; coll. U. S. Nat. Mus.).—ZELEDON, Anal. Mus. Nac. Costa Rica, i, 1887, 113 (El Zarcero de Alajuela and Rio Sucio, e. Costa Rica).

Cyanolyca cucullata SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, Apr., 1887, 500 (Rio Sucio and Navarro, e. Costa Rica; Isthmus of Panama).—BANGS, Proc. New Engl. Zool. Club, iii, 1902, 57 (Volcan de Chiriqui, 7,000 ft.).

Genus APHELOCOMA Cabanis.

Aphelocoma^b CABANIS, Mus. Hein., i, Oct., 1851, 221, footnote. (Type, *Garrulus californicus* Vigors.)

Medium-sized or rather small jays, without any crest, and with the prevailing color uniform blue or blue and gray.

Nidification.—Nest in bushes, small trees, or vines, open above, composed of dry twigs, etc., lined with finer materials. Eggs 3-6, pale greenish or bluish speckled with brown, etc. (immaculate greenish blue in *A. sieberii arizonæ*.)

Range.—Western United States to highlands of Guatemala; Florida (one species). (About nine species.)

^a Four specimens; three from Volcan de Chiriqui (Caribbean slope), one from Chitra, prov. Coclé, Panama.

^b "Von *ἀφελής*, Schlicht, und *κόμη*, *ῆ*, Haupthaar."

No other genus of jays is likely to be confounded with this, the only form closely approaching *Aphelocoma* being the two small and aberrant species of *Cyanolyca* (*C. nana* and *C. pumilo*) found in southern Mexico and Guatemala. These small *Cyanolyca* come so very close to *Aphelocoma* in structural characters that I am unable to discover any points of material difference, but their style of coloration is very distinct.

Aphelocoma is, on the other hand, closely related to *Cyanocitta*, from which it differs chiefly in total absence of any crest.

KEY TO THE SPECIES AND SUBSPECIES OF APHELOCOMA.

- a. Under parts chiefly light grayish or whitish.
 - b. Tail longer than wings; a more or less streaked jugular and gular area, different in color from breast, etc. (or else pileum, hindneck, and sides of head gray, not blue).
 - c. Blue of pileum fading anteriorly and laterally into a much paler (sometimes whitish) hue. (Florida.) *Aphelocoma cyanea* (p. 326)
 - cc. Blue of pileum equally intense throughout.
 - d. Sides of chest extensively uniform blue, and feathers of lower median portion of chest blue with median spots or broad streaks of white.
 - e. Under parts paler, the breast and sides not darker than pale brownish gray.
 - f. Smaller and lighter colored (back brownish gray, blue of a dull cobalt hue). (*Aphelocoma californica*.)
 - g. Blue of head, etc., darker; under parts darker.
 - h. Larger, except bill (wing of adult male averaging 128.5, tail 141, exposed culmen 26.5, tarsus 41.5); back paler gray; under parts paler, with under tail-coverts usually white or but faintly tinged with blue on longer feathers. (California, except portion south of San Fernando, San Gabriel, and San Bernardino mountains and north into Oregon; east slope of Sierra Nevada.)
 - *Aphelocoma californica californica* (p. 327)
 - hh. Smaller, except bill (adult male averaging wing 123, tail 136, exposed culmen 27.5, tarsus 40); back darker gray; under parts darker, with under tail-coverts usually pale blue or strongly tinged with this color. (Southern California south of San Fernando, San Gabriel, and San Bernardino mountains; northern Lower California.) *Aphelocoma californica obscura* (p. 330)
 - gg. Blue of head, etc., paler; under parts nearly pure white. (Cape district of Lower California.)
 - *Aphelocoma californica hypoleuca* (p. 331)
 - ff. Larger and darker colored (back deep sooty, blue of a dull ultramarine hue). (Adult male averaging wing 135.5, tail 148.5, exposed culmen 33, tarsus 46.5.) (Santa Cruz Island, southern California.)
 - *Aphelocoma insularis* (p. 331)
 - cc. Under parts darker, the breast and sides ash gray or light mouse gray.
 - f. Under tail-coverts grayish blue. (Rocky Mountain plateau of United States, east to Davis Mountains, Texas.)
 - *Aphelocoma woodhousei* (p. 333)
 - ff. Under tail-coverts white (the longer sometimes tinged with pale gray or bluish at tips). (Plateau of Mexico, south to States of Hidalgo and Mexico, and north to Sutton Co., Texas.)
 - *Aphelocoma cyanotis* (p. 335)

dd. Sides of chest not extensively, if at all, blue, and feathers of lower median portion of chest whitish, with indistinct grayish edges.

e. Larger (adult male averaging wing 143, tail 147, exposed culmen 27, tarsus 43); no distinct white superciliary streak. (Southern portion of Mexican plateau, in States of Tlaxcala, Vera Cruz, Puebla, and Oaxaca.)

***Aphelocoma sumichrasti* (p. 336)**

ee. Smaller (adult male averaging wing not more than 133.5, tail 146, exposed culmen 27.5, tarsus 40.5); a distinct white superciliary streak.

f. Darker, the blue of a light cobalt or azure hue, back and breast distinctly brownish gray; bill and feet much stouter (exposed culmen of adult female averaging 26, depth of bill at base 9.5, tarsus 39.5). (Southwestern Texas, from Davis Mountains east to Kerr County.)

***Aphelocoma texana* (p. 337)**

ff. Paler, the blue of a light grayish cerulean hue, back and breast ashy gray; bill and feet much more slender (exposed culmen of adult female 25, depth of bill at nostrils 8, tarsus 38). (Southern Chihuahua.)

***Aphelocoma grisea* (p. 337)**

bb. Tail decidedly shorter than wing; no streaks on throat or chest, the under parts being plain grayish, deeper on chest, paler (often white) posteriorly.

c. Tail distinctly rounded at tip. (*Aphelocoma sieberii*.)

d. Larger (wing of adult male averaging more than 165, tail averaging more than 146).

e. Brighter colored, the pileum, hindneck, wings, upper tail-coverts, and tail distinctly blue.

f. Darker, the blue of a cobalt hue; posterior under parts pale grayish, even the under tail-coverts at least partly gray. (Southern portion of Mexican plateau, in States of Vera Cruz, Puebla, southern Hidalgo, Mexico, Morelos, and Michoacan.)

***Aphelocoma sieberii sieberii* (p. 338)**

ff. Paler, the blue of a cerulean hue; posterior under parts white, the under tail-coverts pure white or with the longer ones but slightly grayish.

g. Larger, except bill and feet (wing of adult male averaging 178, tail 158.5); breast, etc., more brownish gray. (Southwestern part of Mexican plateau in States of Jalisco and Colima.)

***Aphelocoma sieberii colimae* (p. 339)**

gg. Smaller, except bill and feet (wing of adult male averaging 167, tail 146.5); breast, etc., more bluish gray. (Northeastern portion of Mexican plateau, in States of Hidalgo, eastern San Luis Potosi, southern Tamaulipas, southern Coahuila, and eastern Zacatecas.)

***Aphelocoma sieberii potosina* (p. 340)**

ee. Duller colored, the pileum, hindneck, wings, tail, etc., dull grayish blue. (Southern Arizona and New Mexico; northern Chihuahua and Sonora.)

***Aphelocoma sieberii arizonae* (p. 340)**

dd. Smaller (wing of adult male averaging less than 158.5, tail averaging less than 139.5).

e. Larger, with smaller bill (wing of adult male averaging 158, tail 136, exposed culmen 26.5, depth of bill at nostrils 9.5); coloration slightly paler. (Northwestern and central portion of Mexican plateau, in States of western San Luis Potosi, Zacatecas, northern Jalisco, southwestern Chihuahua, and Sinaloa.)

***Aphelocoma sieberii wollweberi* (p. 341)**

ee. Smaller, with larger bill (wing of adult male averaging 146, tail 126.5, exposed culmen 29, depth of bill at nostrils 10); coloration slightly deeper. (Northeastern Mexico, in State of Nuevo Leon and north to Chisos Mts., southwestern Texas.)

***Aphelocoma sieberii coochi* (p. 342)**

cc. Tail even or truncated at tip. ("Mexico.") ***Aphelocoma ultramarina* (p. 343)**

- aa. Under parts uniform bright blue, similar in color to upper parts. (*Aphelocoma unicolor*.)
- b. Smaller, with the blue of a cobalt hue (wing of adult male averaging 161.5, tail 153.5). (Southeastern Mexico, in States of Vera Cruz, Puebla, and Mexico.)
Aphelocoma unicolor unicolor (p. 344)
- bb. Larger, with the blue of a cerulean hue (wing of adult male averaging 167, tail 157.5). (Highlands of Guatemala and Chiapas.)
Aphelocoma unicolor caelestis (p. 345)

APHELOCOMA CYANEA (Vieillot).

FLORIDA JAY.

Adults (sexes alike).—Pileum, hindneck, sides of neck, scapulars, wings, upper tail-coverts, and tail plain dull azure blue, the first fading anteriorly and laterally into paler blue on forehead and superciliary region (the latter sometimes white or bluish white); sides of head (auricular, orbital, and malar regions) duller blue, becoming dusky on lores and immediately around eyes; back and rump smoke gray or drab-gray, the latter tinged with blue; chin and upper throat grayish white, gradually shading into light gray on chest, the feathers with narrow shaft-lines of dusky; feathers of lower chest blue, forming a semicircular collar confluent laterally with blue of sides of neck; breast, abdomen, sides, and flanks light smoke gray, deepest laterally, fading into white on anal region; under tail-coverts dull azure blue; bill, legs, and feet black; iris brown.

Young.—Pileum, hindneck, sides of neck, auricular region, etc., deep mouse gray (rather browner posteriorly, where feathers sometimes indistinctly tipped with paler); back, scapulars, rump, and upper tail-coverts paler and browner gray (sometimes pale drab-gray or hair brown), the feathers sometimes with paler tips; chin, throat, and abdomen dull whitish; under tail-coverts light gray; rest of under parts light grayish, deeper across lower part of chest, where forming a more or less strongly indicated semicircular collar; wings and tail as in adults, the smaller wing-coverts, however, grayish, and the greater wing-coverts narrowly tipped with pale grayish.

Adult male.—Length (skins), 288–294.5 (291); wing, 112–117 (115.5); tail, 136.5–145.5 (140.5); exposed culmen, 25–27.5 (26); depth of bill at nostrils, 9.5–10.5 (10); tarsus, 37.5–40 (38.5); middle toe, 21.5–22.5 (22).^a

Adult female.—Length (skins), 266.5–282 (273); wing, 105–113.5 (109); tail, 129–137.5 (132.5); exposed culmen, 24–25.5 (25); depth of bill at nostrils, 8.4–9.1 (8.9); tarsus, 35.5–39 (37); middle toe, 19.5–22.5 (21).^a

Peninsula of Florida (in oak scrub, irregularly distributed).

Garrulus cyaneus VIEILLOT, Nouv. Dict. d'Hist. Nat., xii, 1817, 476 (Florida, etc.).

Aphelocoma cyanea COUES, Auk, xvi, Jan., 1899, 84, in text.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, Jan., 1899, 112.

^a Five specimens.

- Garrulus caerulescens* VIEILLOT, Nouv. Dict. d'Hist. Nat., xii, 1817, 480 ("Kentucky").—ORD, Journ. Ac. Nat. Sci. Phila., i, 1818, 347.
- P[ica] caerulescens* WAGLER, Syst. Av., 1827, Pica, sp. 11.
- Corvus floridanus* BONAPARTE, Ann. Lyc. Nat. Hist. N. Y., ii, 1828, 58 (based on *Corvus floridanus, pica glandaria minor, the little jay of Florida*, Bartram, Travels, p. 290).—NUTTALL, Man. Orn. U. S. and Can., i, 1832, 230.—AUDUBON, Orn. Biog., i, 1831, 444, pl. 87.
- Garrulus floridanus* BONAPARTE, Am. Orn., ii, 1828, 59, pl. 14, fig. 1.—AUDUBON, Synopsis, 1839, 154; Birds Am., oct. ed., iv, 1842, 118, pl. 233.—SCHLEGEL, Mus. Pays-Bas, Coraces, 1867, 64, part (Florida).
- Cyanurus floridanus* SWAINSON, Fauna Bor.-Am., ii, 1831, 495.
- [*Cyanurus*] *floridanus* GRAY, Hand-list, ii, 1870, 4, no. 6096.
- Cyanocorax floridanus* BONAPARTE, Geog. and Comp. List, 1838, 27.
- [*Cyanocitta*] *floridanus* BONAPARTE, Consp. Av., i, 1850, 377.
- Cyanocitta floridana* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 586; Cat. N. Am. Birds, 1859, no. 439.—TAYLOR, Ibis, 1862, 129.—SCLATER, Cat. Am. Birds, 1862, 360.—ALLEN, Bull. Mus. Comp. Zool., ii, 1871, 298, excl. syn. part (Dummitts and Blue Springs, e. Florida).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 285, pl. 40, fig. 4.—COUES, Proc. Ac. Nat. Sci. Phila., 1875, 346 (nomencl.).—MAYNARD, Birds E. N. Am., 1881, 164.
- A[phelocoma] floridana* CABANIS, Mus. Hein., i, Oct., 1851, 221, footnote.—COUES, Key N. Am. Birds, 2d ed., 1884, 423.—RIDGWAY, Man. N. Am. Birds, 1887, 355.
- [*Aphelocoma*] *floridana* COUES, Key N. Am. Birds, 1872, 166.
- Aphelocoma floridana* COUES, Check List, 1873, no. 236; 2d ed., 1882, no. 354.—SHARPE, Cat. Birds Brit. Mus., iii, 1877, 117.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 291.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 479.—SCOTT, Auk, vi, 1889, 319 (Gulf coast Florida, north of Punta Rasa).—BENDIRE, Life Hist. N. Am. Birds, ii, 1895, 370, pl. 5, fig. 13 (egg).—NEHRING, Our Native Birds, etc., ii, 1896, 324.
- [*Aphelocoma floridana* var. *woodhousei*] *a. floridana* COUES, Birds N. W., 1874, 219 (synonymy).

APHELOCOMA CALIFORNICA CALIFORNICA (Vigors).

CALIFORNIA JAY.

Similar to *A. cyanea*, but entire pileum uniform blue (deeper blue than in *A. cyanea*), margined laterally by a superciliary line of white streaks; back browner and rather darker gray; chin, throat, and chest purer white; sides and flanks paler (dull white instead of distinctly grayish).

Adults (sexes alike).—Entire pileum, hindneck and sides of neck uniform dull cobalt blue; suborbital, malar, and auricular regions similar but darker, especially the last, which is sometimes quite dusky; back brownish mouse gray or drab-gray; scapulars and rump more bluish gray; wings, tail, and upper tail-coverts rather dull azure blue; chin, throat, and median portion of chest white, the last more or less streaked with blue, especially the posterior portion, where the feathers are mainly white with blue edges; sides of chest uniform blue; breast very pale drab-gray fading into dull white on other under parts, the anal region and shorter under tail-coverts pure white, the longer under

tail-coverts usually more or less tinged with pale blue; bill, legs, and feet black; iris brown.

Young.—Pileum, hindneck, auricular and suborbital regions, sides of chest, rump, and upper tail-coverts uniform mouse gray, the pileum slightly more bluish gray; back, scapulars, and lesser wing-coverts deep drab-gray; lores dusky; a broad postocular or supra-auricular space, narrowly streaked with dusky gray; anterior portion of malar region, chin, throat, median portion of chest and under parts generally white, faintly tinged across upper breast and on anterior portion of sides with very pale brownish gray; wings (except smaller coverts) and tail as in adults.

Adult male.—Length (skins), 283.9–315 (288.8); wing, 125.5–132 (129.3); tail, 137–147 (142.7); exposed culmen, 24.9–27.4 (26.4); depth of bill at nostrils, 9.1–10.5 (9.6); tarsus, 40.4–45 (41.1); middle toe, 21.6–27 (23.1).^a

Adult female.—Length (skins), 254–295 (274.5); wing, 115.6–127 (121.7); tail, 124.5–137 (130.2); exposed culmen, 20.8–26 (24.4); depth of bill at nostrils, 8.9–10.2 (9.6); tarsus, 37.6–46 (41); middle toe, 20.3–23 (22.2).^b

Pacific coast district of United States (north of San Fernando, San Gabriel, and San Bernardino mountains), north to southwestern Washington, east to, and including, eastern slope of Sierra Nevada and Cascade ranges.

Garrulus californicus VIGORS, Zool. Voy. "Blossom," 1839, 21, pl. 5 (Monterey, California).—BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1853, 333 (Monterey).

Cyanocitta californica STRICKLAND, Ann. Nat. Hist., xv, 1845, 342.—GAMBEL, Journ. Ac. Nat. Sci. Phila., 3d ser., i, 1847, 45.—SCLATER, Proc. Zool. Soc. Lond., 1857, 127 (San José Valley, California); Cat. Am. Birds, 1862, 143 (San Francisco).—KENNERLY, Rep. Pacific R. R. Surv., x, pt. vi, 1859, 32, part (California).—NEWBERRY, Rep. Pacific R. R. Surv., vi, pt. iv, 1857, 85 (Sacramento Valley, etc., California).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858.

^aTen specimens.

^bNine specimens.

Specimens from Oregon (*A. c. immanus* Grinnell) compare in average measurements with those from northern and central California as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at noe- trils.	Tarsus.	Middle toe.
MALES.						
Six adult males from California.....	128.8	142.2	26.4	9.6	41.1	23.1
Four adult males from Oregon.....	130.2	142.7	26.2	10.2	43.9	25.5
FEMALES.						
Seven adult females from California.....	120.6	128.3	24.1	9.4	40.4	22.1
Two adult females from Oregon.....	125	137	25.5	10	43.5	23

In coloration the two series seem to be identical.

- 584, part; Cat. N. Am. Birds, 1859, no. 437, part; Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 20, part (San Felipe, Santa Clara Co., California).—HEERMANN, Rep. Pacific R. R. Surv., x, pt. vi, 1859, 55 (California; habits).—SCLATER, Cat. Am. Birds, 1862, 143 (San Francisco).—COOPER, Orn. Cal., 1870, 302, part.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 288, part, pl. 40, fig. 1; iii, 1874, 518 (Verdi, w. Nevada, 4,500 ft., July).—RIDGWAY, Orn. 40th Parallel, 1877, 525 (Sacramento Valley and w. foothills Sierra Nevada, California; Carson City, Nevada).
- C[yanocitta] californica* GAMBEL, Journ. Ac. Nat. Sci. Phila., i, 1847, 45.
- [*Cyanocitta*] *californicus* BONAPARTE, Consp. Av., i, 1850, 377.
- Cyanocorax californica* GAMBEL, Proc. Ac. Nat. Sci. Phila., iii, 1847, 201.
- A[phelocoma] californica* CABANIS, Mus. Hein., i, Oct., 1851, 221, footnote.—RIDGWAY, Man. N. Am. Birds, 1887, 356, part.
- Aphelocoma californica* BONAPARTE, Compt. Rend., xxxii, 1853, 828; Notes Orn. Coll. Delattre, 1854.—SHARPE, Cat. Birds Brit. Mus., iii, 1877, 113 (San Francisco, California).—BELDING, Proc. U. S. Nat. Mus., i, 1879, 422 (centr. California); Land Birds Pacific Distr., 1890, 422, part (localities in centr. and n. California, Oregon, and Washington).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 293, part.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 481, part.—ANTHONY, Auk, iii, 1886, 167 (Beaverton, Oregon).—(?) EVERMANN, Auk, iii, 1886, 181 (Ventura Co., California).—TOWNSEND, Proc. U. S. Nat. Mus., x, 1887, 211 (Mount Shasta, Red Bluff, etc.).—LAWRENCE (R. H.), Auk, ix, 1892, 301 (near Vancouver, Clarke Co., Washington).—FISHER, North Am. Fauna, no. 7, 1893, 70 (localities in California).—BENDIRE, Life Hist. N. Am. Birds, ii, 1895, 374, pl. 5, figs. 15–18 (eggs).—NEHRLING, Our Native Birds, etc., ii, 1896, 325.—FISHER (W. K.), Condor, iv, 1902, 11 (Mono Lake, s. e. California, Sept.).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 275, part.
- [*Cyanurus*] *californicus* GRAY, Hand-list, ii, 1870, 4, no. 6092.
- [*Cyanocitta californica*] var. *californica* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 284.
- [*Aphelocoma floridana*.] Var. *californica* COUES, Key N. Am. Birds, 1872, 166, part.
- Aphelocoma floridana* . . . var. *californica* COUES, Check List, 1873, no. 2366, part.
- Aphelocoma floridana* var. *californica* NELSON, Proc. Bost. Soc. N. H., xviii, 1875, 360 (Nevada, California).
- [*Aphelocoma floridana* var. *woodhousei*] c. *californica* COUES, Birds N. W., 1874, 219, part (synonymy).
- Aphelocoma floridana californica* COUES, Check List, 2d ed., 1882, no. 356, part.
- A[phelocoma] f[loridana] californica* COUES, Key N. Am. Birds, 2d ed., 1884, 424, part.
- Cyanocitta floridana* var. *californica* RIDGWAY, Bull. Essex Inst., vi, Oct., 1874, 172 (Sacramento Valley; both slopes Sierra Nevada); vii, 1875, 37 (foot-slope Sierra Nevada, near Carson City).
- Cyanocitta floridana californica* RIDGWAY, Bull. Essex Inst., vi, Oct., 1874, 174 (e. slope Sierra Nevada); vii, 1875, 18 (Carson City, Nevada).
- Cyanocitta floridana* . . . var. *californica* HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1876, 253, part (Fort Tejon, Walker's Basin, and near Kernville, s. California); 1877, 1309 (Carson City, Nevada).
- Cyanocitta* var. *californica* HENSHAW, Ann. Rep. Wheeler's Surv., 1877, 1305 (e. slope Sierra Nevada).
- C[yanocitta] floridana californicus* HENSHAW, Orn. Rep. Wheeler's Surv., 1879, 307 (Carson, Nevada, to Dalles, Oregon; descr. young).
- Cyanocitta superciliosa* STRICKLAND, Ann. Nat. Hist., xv, 1845, 260, 343 (crit. nom.).

- Corvus ultramarinus* (not of Bonaparte) AUDUBON, Orn. Biog., iv, 1838, 456, pl. 362.
- Garrulus ultramarinus* (not of Temminck) AUDUBON, Synopsis, 1839, 154; Birds Am., oct. ed., iv, 1842, 115, pl. 232.
- Garrulus floridanus* (not *Corvus floridanus* Bonaparte) SCHLEGEL, Mus. Pays-Bas, Coraces, 1867, 64, part (Fort Tejon, California; "l'Amerique Russe").
- Aphelocoma californica immanis* GRINNELL (J.), Auk, xviii, Apr., 1901, 188 (Scio, Oregon; coll. J. Grinnell).

APHELOCOMA CALIFORNICA OBSCURA Anthony.

BELDING'S JAY.

Similar to *A. c. californica*, but smaller (except bill) and darker; back deep brownish mouse gray, the blue parts of a deeper hue; under parts of the body decidedly gray for the anterior half, only the lower abdomen and anal region being distinctly white; under tail-coverts usually strongly tinged with grayish blue.

Adult male.—Length (skins), 266.5–287 (273); wing, 122–125 (123); tail, 128–142 (136); exposed culmen, 26.5–29.5 (27.5); depth of bill at nostrils, 9.5; tarsus, 38–41.5 (40); middle toe, 20–21.5 (20.5).^a

Adult female.—Length (skins), 259–270.5 (265.5); wing, 116.5–119.5 (118); tail, 124.5–133 (127); exposed culmen, 25–26 (25); depth of bill at nostrils, 8.5–9 (9); tarsus, 38.5–43.5 (41); middle toe, 19.5–21 (20).^b

Southern coast district of California, north and east to San Fernando, San Gabriel and San Bernardino mountains; northern Lower California, as far as San Pedro Martir mountains.

Cyanocitta californica (not *Garrulus californicus* Vigors) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 584, part (San Pasqual, San Diego Co., California); Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 20, part (do.); Cat. N. Am. Birds, 1859, no. 437, part.—COOPER, Orn. Cal., 1870, 302, part (San Diego).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 288, part.

[*Aphelocoma floridana*.] Var. *californica* COUES, Key N. Am. Birds, 1872, 166, part.

Aphelocoma floridana . . . var. *californica* COUES, Check List, 1873, no. 2366.

[*Aphelocoma floridana* var. *woodhousei*.] c. *californica* COUES, Birds N. W., 1874, 319, part (in synonymy).

Aphelocoma floridana californica COUES, Check List, 2d ed., 1882, no. 356, part.

A[phelocoma] f[loridana] californica COUES, Key N. Am. Birds, 2d ed., 1884, 424, part.

Aphelocoma californica RIDGWAY, Nom. N. Am. Birds, 1881, no. 293, part.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 481, part.—MORCOM, Bull. Ridgw. Orn. Club, no. 2, 1887, 47 (San Bernardino Valley, up to 8,000 ft.).—EMERSON, Bull. Cal. Ac. Sci., no. 7, 1887, 422, 426 (Volcano Mts. and Poway, San Diego Co., California; crit.).—BELDING, Land Birds Pacific Distr., 1890, 110, part (San Bernardino and San Diego counties).—MERRIAM (Florence A.), Auk, xiii, 1896, 120 (San Diego Co.; habits).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 275, part.

^a Six specimens.

^b Five specimens.

A[phelocoma] californica RIDGWAY, Man. N. Am. Birds, 1887, 356, part.
Aphelocoma californica obscura ANTHONY, Proc. Cal. Acad. Sci., 2d ser., iii, Oct. 11, 1889, 75 (San Pedro Martir Mts., Lower California; coll. A. W. Anthony); Zoe, iv, 1893, 239 (crit.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 2d ed., 1895, no. 481b.—BENDIRE, Life Hist. N. Am. Birds, ii, 1895, 379.—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 600.—GRINNEL (J.), Pasadena Ac. Sci., Pub. ii, 1898, 31 (Los Angeles Co., California, probably n. to Tehachapi).

APHELOCOMA CALIFORNICA HYPOLEUCA Ridgway.

XANTUS' JAY.

Similar to *A. c. californica*, but smaller (except the bill) and much paler; the blue portions lighter and clearer azure, and the under parts usually whiter, or less strongly tinged with pale brownish gray.

Adult male.—Length (skins), 259–296.5 (273); wing, 121–128 (124); exposed culmen, 27.4–28.7 (27.7); depth of bill at nostrils, 9–10.5 (9.5); tarsus, 36–40 (38.5); middle toe, 22.5–24 (23.5).^a

Adult female.—Length (skins), 249–259 (272); wing, 121–126 (123.5); tail, 124.5–136 (131.5); exposed culmen, 27.4–28.4 (27.7); depth of bill at nostrils, 9–10 (9.5); tarsus, 37–40.5 (39); middle toe, 22.3–23 (22.6).^b

Cape district of Lower California (Cape St. Lucas, San José del Cabo, San Nicolas, Triunfo, La Paz, etc.), north to about latitude 28°.

Cyanocitta californica (not *Garrulus californicus* Vigors) BAIRD, Proc. Ac. Nat. Sci. Phila., 1859, 301, 305 (Cape St. Lucas; crit.).—COOPER, Orn. Cal., 1870, 302, part (Cape St. Lucas).

Aphelocoma californica RIDGWAY, Nom. N. Am. Birds, 1881, no. 293, part.—BELDING [and RIDGWAY], Proc. U. S. Nat. Mus., v, 1882, 541 (La Paz, Lower California), vi, 1883, 348 (Victoria Mts., Lower California).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 481, part (Cape St. Lucas).

Aphelocoma floridana californica COUES, Check List, 2d ed., 1882, no. 356, part.

A[phelocoma] f[loridana] californica COUES, Key N. Am. Birds, 2d ed., 1884, 424, part.

A[phelocoma] californica hypoleuca RIDGWAY, Man. N. Am. Birds, 1887, 356 (La Paz, Lower California; coll. U. S. Nat. Mus.).

Aphelocoma californica hypoleuca RIDGWAY, Man. N. Am. Birds, 1887, 592; 2d ed., 1896, 613.—BRYANT, Proc. Cal. Ac. Sci., 2d ser., ii, 1889, 20 (San Ignacio, Lower California; descr. nest and eggs).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Suppl. to Check List, 1889, 11 (no. 481a); Check List, 2d ed., 1895, no. 481a.—BENDIRE, Life Hist. N. Am. Birds, ii, 1895, 378.—BREWSTER, Bull. Mus. Comp. Zool., xli, 1902, 123 (crit.; variations; habits; descr. nest and eggs).

APHELOCOMA INSULARIS Henshaw.

SANTA CRUZ JAY.

Most like *A. californica obscura* in coloration but very much darker, and larger even than *A. c. californica*.

^a Five specimens.

^b Three specimens.

Adults (sexes alike).—Pileum, hindneck, sides of neck and sides of chest uniform dull ultramarine or french blue; auricular region, suborbital region, and greater part of malar region similar but rather duller or darker; lores and postocular region (upper margin of auricular region) blackish; a series of white streaks beginning immediately above the eye and continued backward, above the auricular region; back very dark brownish gray or grayish sepia; scapulars and rump similar but (especially the latter) tinged with blue; wings, upper tail-coverts, and tail dull ultramarine or french blue; chin, throat, and median portion of chest dull white, indistinctly streaked with grayish, the chest streaked with blue; under parts of body pale brownish gray or grayish brown (dull or soiled whitish in worn plumage); under tail-coverts light grayish blue, the thighs tinged with the same; bill, legs, and feet black; iris brown.

Young.—Pileum, hindneck, auricular and suborbital regions, and sides of chest dull slate color, slightly tinged with dusky blue; back, scapulars, rump, and smaller wing-coverts dark brownish mouse gray; upper tail-coverts dull grayish blue; chin, throat, and median portion of chest white, the last somewhat streaked with gray; under parts of body pale smoke gray, separated from the white of the chest by a narrow collar of bluish slaty, connecting the two slaty areas on sides of chest; under tail-coverts and thighs smoke gray; wings (except smaller coverts) and tail as in adults.

Adult male.—Length (skins), 284.5–313.5 (298); wing, 133.5–140.5 (135.5); tail, 138.5–153.5 (148.5); exposed culmen, 31.5–33.5 (33); depth of bill at nostrils, 11–11.7 (11.4); tarsus, 44.2–47.2 (46.5); middle toe, 21.8–26.5 (25.1).^a

Adult female.—Length (skins), 277–305 (292); wing, 127.5–136 (132.5); tail, 142–148.5 (145); exposed culmen, 31.5–31.7 (31.6); depth of bill at nostrils, 10.2–10.4 (10.3); tarsus, 43.5–45.5 (44.7); middle toe, 23–24.5 (23.5).^b

Santa Cruz Island, Santa Barbara group, southern California.

Cyanocitta floridana . . . var. *californica* (not *Garrulus californicus* Vigors) HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1876, 253, part (Santa Cruz I., California).

Aphelocoma insularis HENSHAW, Auk, iii, Oct., 1886, 452 (Santa Cruz I., California; coll. U. S. Nat. Mus.).—RIDGWAY, Man. N. Am. Birds, 1887, 593.—BLAKE, Auk, iii, 1887, 329 (habits).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Suppl. to Check List, 1889, 11 (no. 481.1); Check List, 2d ed., 1895, no. 481.1.—TOWNSEND, Proc. U. S. Nat. Mus., xiii, 1890, 141.—BENDIRE, Life Hist. N. Am. Birds, ii, 1895, 379.—MAILLIARD, Bull. Cooper Orn. Club, i, 1899, 42, in text (habits); Condor, ii, 1900, 42 (measurements).—OBERHOLSER, Proc. U. S. Nat. Mus., xxii, 1900, 230 (descr. young).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 276.

A[phelocoma] insularis RIDGWAY, Man. N. Am. Birds, 1887, 356.

^a Five specimens.

^b Four specimens.

APHELOCOMA WOODHOUSEII (Baird).

WOODHOUSE'S JAY.

Similar to *A. californica obscura*, but larger, with more slender bill, and more uniform coloration; under parts of body distinctly gray throughout; under tail-coverts blue; blue of upper parts lighter.

Adults (sexes alike).—Head and neck (except chin and throat), wings, upper tail-coverts, and tail, plain dull azure blue, brightest on pileum, where margined laterally by a narrow streak (or series of streaks) of white, the blue dullest on sides of head, where more or less dusky on loreal, orbital, and postocular regions; back and scapulars deep mouse gray, sometimes tinged with blue; rump more bluish gray; chin, throat, and chest grayish white, streaked with bluish gray, these streaks broad and very distinct on chest, which is margined laterally by an extension of the blue from sides of neck; breast, sides, and flanks pale mouse gray or smoke gray, the abdomen paler, fading into white on anal region; under tail-coverts light grayish blue or china blue; bill, legs, and feet black; iris brown.

Young.—Pileum plain mouse gray; rest of upper parts (except wings and tail) plain brownish gray or deep drab-gray; an indistinct superciliary line, or series of streaks, of white; general color of under parts dull light brownish gray, paler on chin, throat, chest, and abdomen, deeper and more brownish on upper portion of breast, against pale grayish jugular area; wings and tail as in adults, but smaller wing-coverts gray and lesser coverts indistinctly tipped with the same.

Adult male.—Length (skins), 272–292 (285.5); wing, 129.5–135.5 (133); tail, 139–147.5 (143); exposed culmen, 26.5–29 (28.5); depth of bill at nostrils, 9–9.5 (9.4); tarsus, 40–42 (41); middle toe, 20.5–23 (22).^a

Adult female.—Length (skins), 261.5–279.5 (271); wing, 120.5–130.5 (126.5); tail, 128.5–140 (135.5); exposed culmen, 24.5–28 (26); depth of bill at nostrils, 9; tarsus, 37–41.5 (39.5); middle toe, 19.5–21 (20.5).^b

Western United States east of Sierra Nevada, chiefly in transition zone; north to southeastern Oregon (Steen's Mountain), southern Idaho (City of Rocks), and southern Wyoming (Henry's Fork, Green River, etc.); east to Colorado, western Nebraska (North Platte), New Mexico, and northwestern Texas (east to Davis Mountains); south to southern Arizona and New Mexico; west to southeastern California (White, Inyo, Argus, Coso, and Panamint mountains^c), west to western Nevada (West Humboldt Mountains, Truckee Valley?, etc.).

Cyanocorax ultramarinus (not *Corvus ultramarinus* Bonaparte) McCALL, Proc. Ac. Nat. Sci. Phila., 1851, 216 (New Mexico).

Cyanocorax californica (not *Garrulus californicus* Vigors) WOODHOUSE, in Rep. Sitgreaves' Expl. Zuni and Col. R., 1853, 77 ("New Mexico," i.e., Arizona).

(?) *Cyanocitta californica* KENNERLY, Rep. Pacific R. R. Surv., iv, pt. vi, 1856, 16 (Mojave R., s. e. California).

^a Five specimens.

^b Five specimens.

^c Mojave River? *

- Cyanocitta californica* (not of Strickland) HENRY, Proc. Ac. Nat. Sci. Phila., 1859, 108 (New Mexico).—KENNERLY, Rep. Pacific R. R. Surv., x, pt. vi, 1859, 32 (Rocky Mts.).
- Cyanocitta woodhousei* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 585 (type from Fort Thorn, New Mexico; coll. U. S. Nat. Mus.); ed., 1860 (Birds N. Am.), atlas, pl. 59.
- Cyanocitta woodhousei* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 925 (Fort Burgwyn, New Mexico); Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 20, pl. 21 (near Coppermines, Arizona); Cat. N. Am. Birds, 1859, no. 438; Rep. Ives' Expl. Col., pt. iv, 1861, 6.—COOPER, Orn. Cal., 1870, 304 (Arizona, etc.).—MERRIAM, Rep. U. S. Geol. Surv. for 1871 (1872), 688 (Ogden, Utah).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, pl. 40, fig. 3.—RIDGWAY, Orn., 40th Parallel, 1877, 528 (West Humboldt and Ruby mountains, Nevada; City of Rocks, s. Idaho; Salt Lake City and Parley's Park, Utah; habits, etc.).
- Cyanocitta woodhousei* COUES, Proc. Ac. Nat. Sci. Phila., 1866, 92 (Fort Whipple, Arizona; habits).—STEVENSON, Prelim. Rep. U. S. Geol. Surv., for 1870 (1871), 465 (Henry's Fork and Green R., Wyoming).—AIKEN, Proc. Boz. Soc. N. H., 1872, 205 (Colorado).—YARROW and HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1871 (1874), 35 (Nevada).
- Aphelocoma floridana* var. *woodhousei* ALLEN, Bull. Mus. Comp. Zool., iii, July, 1872, 150, 169, 179 (Colorado City, Colorado; Ogden, Utah).—COUES, Birds N. W., 1874, 219, excl. syn. part.
- [*Aphelocoma floridana*.] Var. *woodhousei* COUES, Key N. Am. Birds, 1872, 166.
- Aphelocoma floridana* . . . var. *woodhousei* COUES, Check List, 1873, no. 236a.
- Aphelocoma floridana woodhousei* DREW, Bull. Nutt. Orn. Club, vi, July, 1881, 140 (San Juan Co., Colorado).
- Aphelocoma floridana woodhousei* COUES, Check List, 2d ed., 1882, no. 355.
- A[*phelocoma*] f[*loridana*] *woodhousei* COUES, Key N. Am. Birds, 2d ed., 1884, 423.
- [*Aphelocoma floridana* var. *woodhousei*] b. *woodhousei* COUES, Birds N. W., 1874, 219 (synonymy).
- Cyanocitta californica* var. *woodhousei* RIDGWAY, Bull. Essex Inst., v, Nov., 1873, 169, in text (Wasatch Mts., Utah).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 291.
- [*Cyanocitta*] *floridana woodhousei* RIDGWAY, Bull. Essex Inst., vi, Oct., 1874, 174 (Rocky Mts.).
- Cyanocitta floridana woodhousei* RIDGWAY, Bull. Essex Inst., vii, Jan., 1875, 19, 21, 24 (West Humboldt and Ruby mountains, Nevada; City of Rocks, s. Idaho).
- Cyanocitta floridana* . . . var. *woodhousei* RIDGWAY, Bull. Essex Inst., v, Nov., 1873, 184 (Colorado).—HENSHAW, Zool. Exp. W. 100th Merid., 1875, 337 (Utah; Colorado; Arizona; habits).
- Cyanocitta floridana* . . . var. *woodhousei* YARROW and HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1871-1873 (1874), 21 (Nevada; Utah).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 123 (Fort Wingate, New Mexico; Apache and Camp Grant, Arizona).—RIDGWAY, Bull. Essex Inst., vii, 1875, 37 (centr. and e. Nevada).
- Aphelocoma woodhousei* RIDGWAY, Field and Forest, iii, June, 1877, 208 (Colorado).—SHARPE, Cat. Birds Brit. Mus., iii, 1877, 114 (Colorado; Arizona).—BRUNER, Rep. Nebr. Hort. Soc. for 1896 (1898), 121 (North Platte, Nebraska, common).
- Aphelocoma woodhousei* RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 184; Nom. N. Am. Birds, 1881, no. 292.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 480.—SCOTT, Auk, iv, 1887, 20 (Santa Catalina Mts., Arizona).—MERRIAM, North Am. Fauna, no. 3, 1890, 39 (Grand Cañon of

the Colorado), 94 (San Francisco Mts., etc., Arizona).—FISHER, North Am. Fauna, no. 7, 1893, 69 (White, Inyo, Argus, Coso, and Panamint mountains, s. e. California; Charleston, Grapevine, Juniper, and Pahroc mountains, Nevada; Beaverdam Mts., Utah).—ALLEN, Bull. Am. Mus. N. H., v, 1893, 37 (Bisbee, s. Arizona).—LOWE, Auk, xi, 1894, 268 (Wet Mts., Colorado, 6,000 to 8,000 ft.).—BENDIRE, Life Hist. N. Am. Birds, ii, 1895, 372, pl. 5, fig. 14 (egg).—MITCHELL, Auk, xv, 1898, 309 (San Miguel Co., New Mexico, breeding up to 8,000 ft.).

A[phelocoma] woodhousei RIDGWAY, Man. N. Am. Birds, 1887, 355.

Aphelocoma woodhousei BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 274.

[*Cyanurus*] *woodhousei* GRAY, Hand-list, ii, 1870, 4, no. 6097.

APHELOCOMA CYANOTIS Ridgway.

BLUE-CHEEKED JAY.

Similar to *A. woodhousei*, but wing decidedly longer and posterior under parts (including under tail-coverts) white; back more frequently tinged with blue, sometimes almost uniform blue; white superciliary streak much reduced, sometimes obsolete.

Male.—Length (skins), 277–302 (287.5); wing, 137.5–146 (140); tail, 138–147.5 (143); exposed culmen, 26–28.5 (27); depth of bill at nostrils, 9.4–10 (9.6); tarsus, 39–42 (40.5); middle toe, 21–23 (22.5).^a

Female.—Length (skins), 269–282 (275); wing, 133–137 (135.5); tail, 134.5–140 (136.5); exposed culmen, 23.5–26.5 (25); depth of bill at nostrils, 9–9.6 (9.4); tarsus, 39–41.5 (40.5); middle toe, 20.5–22.5 (21).^b

Mexican plateau, in States of Mexico (City of Mexico, Tlalpam, D. F.), Hidalgo (Real del Monte, El Chico, Tula, etc.), San Luis Potosi (Jesus Maria, La Parada, mountains near Charcas, etc.), Coahuila (Carneros, Sierra Encarnacion, Sierra Guadalupe, etc.), and Durango (Cerro Prieto); north to southwestern Texas (Japonica, Kerr County; Paisano, Brewster County; Sonora, Sutton County).

Cyanocitta woodhousei BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 585 (spec. no. 8465, Mexico).

Cyanocitta californica (not *Garrulus californicus* VIGORS) SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1869, 362, part, excl. syn. part (City of Mexico; Tierra fria?).

[*Cyanocitta*] *californica* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 39, part.

[*Cyanocitta californica*] var. *sumichrasti* (not *Cyanocitta floridana* var. *sumichrasti* RIDGWAY, 1873) BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 283, part (City of Mexico).

Aphelocoma sumichrasti STONE, Proc. Ac. Nat. Sci. Phila., 1890, 214, part (Mounts Ixtaccihuatl and Popocatepetl, Mexico, up to 11,000 ft.).

A[phelocoma] cyanotis RIDGWAY, Man. N. Am. Birds, 1887, 357 (Mexico; coll. U. S. Nat. Mus.).

Aphelocoma cyanotis RIDGWAY, Man. N. Am. Birds, 1887, 592; 2d ed., 1896, 613.—JOUY, Proc. U. S. Nat. Mus., xvi, 1893, 781 (25 m. s. of Charcas, San Luis Potosi, Mexico, 7,000–8,000 ft.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 2d ed., 1895, no. 480.1, part (Mexico); Auk, xix, 1902, 321 (Sutton Co., Texas).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 274.

^a Five specimens.

^b Three specimens.

APHELOCOMA SUMICHRASTI Ridgway.

SUMICHRAST'S JAY.

Similar to *A. cyanotis*, but larger (except bill), the back and scapulars hair brown or drab, abruptly contrasted with blue of hindneck, and under parts much paler and more uniform; chest very indistinctly streaked, with little if any blue; rest of under parts white, shading into very pale grayish brown on upper part of chest, or else merely tinged with this color.

Young.—Similar to the young of *A. woodhousei*,^a but blue of wings and tail darker, back rather browner, and under parts white, instead of gray, only the chest being tinged with the latter color.

Adult male.—Length (skins), 284.5–211 (293.5); wing, 136.5–149 (143); tail, 138–153 (147); exposed culmen, 25.5–28.5 (27); depth of bill at nostrils, 8–10.5 (10); tarsus, 40–45.5 (43); middle toe, 22–23.5 (22.5).^b

Adult female.—Length (skins), 272–287 (278.5); wing, 134.5–141 (138); tail, 136.5–144.5 (140); exposed culmen, 23–27 (24.5); depth of bill at nostrils, 9–10 (9.5); tarsus, 40.5–41.5 (41); middle toe, 21.5–24 (23).^c

Southeastern portion of Mexican plateau, in States of Vera Cruz (Cordova; Orizaba; Perote), Puebla (Mount Orizaba; Chalchicomula; Tochimilco; San Martin; Tehuacan), Tlaxcala (Huemantla), and Oaxaca (La Parada; Cinco Señores; Atlisco; Ejutla, Nacaltepec; Mount Zempoaltepec; Coixtlahuaca; Tlalpancingo).

Cyanocitta floridana (not *Corvus floridanus* Bonaparte) SCLATER, Proc. Zool. Soc. Lond., 1856, 300 (Cordova, Vera Cruz).

Cyanocitta californica (not *Garrulus californicus* Vigors) SCLATER, Proc. Zool. Soc. Lond., 1858, 302 (La Parada, Oaxaca); 1859, 381 (Cinco Señores, Oaxaca); Cat. Am. Birds, 1862, 143, part (in synonymy).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1869, 362, part, excl. syn. part (Oaxaca).—SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 554 (alpine reg. Vera Cruz).

[*Cyanocitta californica*] SCLATER and SALVIN, Nom. Av. Neotr., 1873, 39, part.

Aphelocoma californica SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1887, 492, excl. syn. part (Mexican localities).

Cyanocitta floridana var. *sumichrasti* RIDGWAY, Bull. Essex Inst., v, Dec., 1873, 199 (Orizaba, Vera Cruz; coll. U. S. Nat. Mus.).

[*Cyanocitta californica*] var. *sumichrasti* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 283, pl. 40, fig. 2, part (Orizaba).

Cyanocitta sumichrasti BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 283, footnote.

Cyanocitta californica var. *sumichrasti* LAWRENCE, Bull. U. S. Nat. Mus., no. 4, 1876, 24 (Nacaltepec, Oaxaca).

[*Aphelocoma californica* var. *woodhousei*] d. *sumichrasti* COUES, Birds N. W., 1874, 219 (synonymy).

Aphelocoma floridana var. *sumichrasti* COUES, Birds N. W., 1874, 219, in synonymy.

Aphelocoma sumichrasti SHARPE, Cat. Birds Brit. Mus., iii, 1877, 114 (Atlisco, Oaxaca).—STONE, Proc. Ac. Nat. Sci. Phila., 1890, 214, part (Chalchicomula, Puebla, 9,000 to 10,000 ft.).

.1 [*Aphelocoma*] *sumichrasti* RIDGWAY, Man. N. Am. Birds, 1887, 356.

^aThe young of *A. cyanotis* not seen.

^bSix specimens.

^cFive specimens.

APHELOCOMA TEXANA Ridgway.

TEXAN JAY.

Similar in coloration of upper parts to *A. cyanotis*, but white superciliary line more developed and back slightly paler and less bluish gray; in coloration of under parts much paler than *A. cyanotis*, and closely resembling in this respect *A. sumichrasti*, the chest being equally devoid of distinct blue streaks and the breast of the same pale grayish brown, this color, however, extending farther backward, especially along the sides; smaller than either *A. cyanotis* or *A. sumichrasti*, except bill.

Young.—Similar to the young of *A. sumichrasti*, but gray of upper parts purer and more uniform, that of the pileum quite concolor with that of the back, instead of being considerably darker. (Much whiter below than young of *A. woodhousei*.)

Adult male.—Length (skins), 274.5–294.5 (285); wing, 131.5–135.5 (133.5); tail, 145–147 (146); exposed culmen, 26.5–28.5 (27.5); depth of bill at nostrils, 9.5; tarsus, 40–41 (40.5); middle toe, 20.5–22.5 (22).^a

Adult female.—Length (skins), 277–292 (289.5); wing, 122.5–130 (126); tail, 127–141 (133.5); exposed culmen, 25.5–26.5 (26); depth of bill at nostrils, 9–9.6 (9.4); tarsus, 38–41 (39.5); middle toe, 20–22 (21).^b

Southwestern Texas, from Concho and Kerr counties west to the Davis Mountains (Alpine, Fort Davis, Paisano, etc.).

Aphelocoma woodhousei (not *Cyanocitta woodhousei* Baird) LLOYD, Auk, iv, 1887, 290 (Concho and Tom Green counties, w. Texas).

Aphelocoma cyanotis (not of Ridgway) FISHER, Auk., xi, 1894, 327 (Paisano, Brewster Co., w. Texas, breeding).—BENDIRE, Life Hist. N. Am. Birds, ii, 1895, 382, part, in footnote (Edwards and Kerr counties, Texas; crit.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Check List, 2d ed., 1895, no. 480.1, part; Auk, xii, 1895, 165, excl. syn.

Aphelocoma texana RIDGWAY, Auk, xix, Jan., 1902, 70 (near head of Nueces River, Edwards Co., Texas; coll. U. S. Nat. Mus.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xix, 1902, 321 (Check List no. 480.2).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 275.

APHELOCOMA GRISEA Nelson.

BLUE-GRAY JAY.

Similar to *A. texana*, but coloration much paler above, less brownish gray below, and with bill and feet decidedly more slender; blue of upper parts pale grayish cerulean, instead of azure; back, scapulars, and rump smoke gray, tinged with pale grayish blue; breast, etc., pale smoke gray.

Adult female.—Length (skin), 275; wing, 134; tail, 139; exposed culmen, 25; depth of bill at nostrils, 8; tarsus, 38; middle toe, 20.5.

^aThree specimens.

^bFour specimens.

Sierra Madre of southern Chihuahua (near Guachochi) and Durango (Cerro Prieto).

Aphelocoma grisea NELSON, Proc. Biol. Soc. Wash., xiii, May 29, 1899, 27 (near Guachochi, Sierra Madre of southern Chihuahua; coll. U. S. Nat. Mus.).

APHELOCOMA SIEBERII SIEBERII (Wagler).

SIEBER'S JAY.

Adults (sexes alike).—Above, including sides of head and neck (except lores), plain dull cobalt or deep azure blue, the back usually, but not always, duller and grayer, sometimes distinctly so; chin and upper throat very pale bluish gray or grayish white, the shafts of the feathers black; the grayish white or pale grayish of upper throat gradually deepening into mouse gray or smoke gray on chest, breast, and sides, this gradually fading into paler gray on flanks and abdomen, the lower portion of the latter, together with anal region and under tail-coverts white; the gray deepest on sides of breast, where more or less tinged with blue (whole breast sometimes tinged with blue); bill, legs, and feet black.^a

Young.—Pileum and sides of head deep gray, sometimes tinged with blue; hindneck, sides of neck, back, scapulars, rump, and lesser wing-coverts rather lighter and browner gray; gray of under parts browner, the under tail-coverts pale gray; wings (except smaller coverts) and tail as in adults; mandible with basal half (sometimes tip also) light-colored (flesh color in life), also basal half of maxillary tomium.

Adult male.—Length (skins), 316–332.5 (326); wing, 173–188.5 (182); tail, 158–169.5 (164); exposed culmen, 27–28.5 (27.5); depth of bill at nostrils, 9.9–10.7 (10.2); tarsus, 43–44.5 (44); middle toe, 23–25 (24).^b

Adult female.—Length (skins), 309–326.5 (318.5); wing, 174–184.5 (178); tail, 156.5–169.5 (162.5); exposed culmen, 28–28.5 (28); depth of bill at nostrils, 10–10.5 (10.2); tarsus, 42–43.5 (43); middle toe, 23–25 (24).^b

Southern portion of Mexican plateau, in States of Vera Cruz (Jalapa, Mirador, Orizaba, Cofre de Perote, etc.), Puebla (Mount Orizaba, Cerro San Pedro, etc.), Mexico (north slope Volcan de Toluca), Morelos (Huitzilac, Titela del Volcan), and Michoacan (Patzcuaro, Nahuatzin, etc.).

P[ica] sieberii WAGLER, Syst. Av., 1827, [page 365, by count], *Pica*, sp. 23.
C[yanocorax] sieberii GRAY, Gen. Birds, ii, 1849, 307.

^a Younger individuals, though in adult plumage, have more or less of the basal portion of the mandible, sometimes the basal portion of the maxillary tomium also, light colored (said to be flesh-colored in life).

^b Four specimens.

- [*Cyanocitta sieberi* BONAPARTE, *Consp. Av.*, i, 1850, 378.
A[phelocoma] sieberi CABANIS, *Mus. Hein.*, i, Oct., 1851, 221, footnote.
Aphelocoma sieberii FERRARI-PEREZ, *Proc. U. S. Nat. Mus.*, ix, 1886, 153 (Cerro de San Pedro, Hacienda de San Pedro, and San Salvador el Verde, Pueblo).—STONE, *Proc. Ac. Nat. Sci. Phila.*, 1890, 214 (Mount Orizaba, Vera Cruz, 10,000 ft.).—COX, *Auk*, xii, 1895, 358 (Mount Orizaba).—CHAPMAN, *Bull. Am. Mus. N. H.*, x, 1898, 42 (Las Vigas, Vera Cruz, 8,000 ft.).
A[phelocoma] sieberii RIDGWAY, *Man. N. Am. Birds*, 1887, 358.
[*Cyanurus*] *sieberi* GRAY, *Hand-list*, ii, 1870, 4, no. 6093, part (Mexico).
Garrulus sordidus SWAINSON, *Philos. Mag.*, new ser., i, June, 1827, 437 (Real del Monte, Hidalgo, Mexico); *Zool. Illustr.*, 2d ser., ii, 1831?, pl. 86.
Cyanurus sordidus SWAINSON, *Fauna Bor.-Am.*, ii, 1831, 495.
[*Cyanogarrulus*] *sordidus* BONAPARTE, *Consp. Av.*, i, 1850, 377.
Aphelocoma sordida SHARPE, *Cat. Birds Brit. Mus.*, iii, 1878, 116.
Cyanocitta sordida BAIRD, *Rep. U. S. and Mex. Bound. Surv.*, ii, pt. ii, 1859, pl. 22, fig. 1 (not the text; Mexico); ed. 1860 (*Birds N. Am.*), atlas, pl. 60, fig. 1 (not the text, p. 587, except in part).—SCLATER, *Cat. Am. Birds*, 1862, 143 (Jalapa, Vera Cruz).—SUMICHRAST,^a *Mem. Bost. Soc. N. H.*, i, 1869, 554 (plateau and alpine reg. Vera Cruz).—BAIRD, BREWER, and RIDGWAY, *Hist. N. Am. Birds*, ii, 1874, 284, footnote, pl. 41, fig. 1.
[*Cyanocitta*] *sordida* SCLATER and SALVIN, *Nom. Av. Neotr.*, 1873, 39, part.
[*Cyanocitta ultramarina*] var. *sordida* BAIRD, BREWER and RIDGWAY, *Hist. N. Am. Birds*, ii, 1874, 284 (Orizaba and Mirador, Vera Cruz).
Garrulus ultramarinus (not *Corvus ultramarinus* Bonaparte?) TEMMINCK, *Pl. Col.*, ii, 1838, pl. 439.^b—SCHLEGEL, *Mus. Pays-Bas, Coraces*, 1867, 64, part.
Cyanocorax ultramarinus SCLATER, *Proc. Zool. Soc. Lond.*, 1857, 204 (Jalapa); 1859, 365 (do.).
[*Garrulus*] *ultramarinus* GRAY, *Hand-list*, ii, 1870, 4, no. 6095, part.
Aphelocoma ultramarina (not of Sharpe?) SALVIN and GODMAN, *Biol. Centr.-Am., Aves*, i, 1887, 493, part (excl. synonyms *ultramarinus*, *couchi*, and *arizonæ*).
Corvus azureus (not of Temminck, 1822) LICHTENSTEIN, *Preis-Verz. Mex. Vög.* 1830, 1 (Mexico); *Journ. für Orn.* 1863, 56 (reprint).

APHELOCOMA SIEBERII COLIMÆ Nelson.

COLIMA JAY.

Similar to *A. s. sieberii*, but slightly smaller (except bill), and somewhat lighter colored, especially the under parts, which are more extensively white posteriorly and of a more brownish, as well as lighter, gray anteriorly; the blue of a more cerulean hue, as in *A. s. potosina*.

Adult male.—Length (skins), 317.5–325 (321.5); wing, 176–180 (178); tail, 158–160 (158.5); exposed culmen, 26.5–29 (27.5); depth of bill at nostrils, 10.5; tarsus, 43–44 (43.5); middle toe, 23.5–25 (24).^c

^a *Cyanocitta ultramarina* of Sumichrast (*Mem. Bost. Soc. N. H.*, i, 1869, 554) seems to be *A. unicolor*, since the latter name is omitted from his list, while the present species is given as *C. sordida*.

^b According to Schlegel (*Mus. Pays-Bas, Coraces*, 64), the specimen figured is the type of *Pica sieberii* Wagler.

^c Three specimens.

Adult female.—Length (skins), 302–310.5 (306.5); wing, 172.5–174.5 (173.5); tail, 150.5–153.5 (152); exposed culmen, 26.5–27 (26.9); depth of bill at nostrils, 10.5; tarsus, 41–43.5 (42.5); middle toe, 22–26 (24).^a

Southwestern portion of Mexican plateau, in States of Jalisco (La Laguna; Jacala; San Sebastian; Sierra Nevada) and Colima (Sierra Madre).

Aphelocoma sieberi colimæ NELSON, Auk, xvi, Jan., 1899, 27 (Jacala, Jalisco, s. w. Mexico; coll. U. S. Nat. Mus.).

APHELOCOMA SIEBERII POTOSINA Nelson.

SAN LUIS POTOSI JAY.

Similar to *A. s. sieberii*, but decidedly smaller, bill larger, and coloration of upper parts paler, the blue of a light azure or almost cerulean hue, and the posterior under parts more extensively white (entire flanks and lower abdomen white, or nearly so).

Adult male.—Length (skins), 284.5–308 (299); wing, 160–172 (169); tail, 137–151 (146); exposed culmen, 28–29.5 (29); depth of bill at nostrils, 10–11 (10.5); tarsus, 42.5–44.5 (43.5); middle toe, 24–25.5 (24.5).^b

Adult female.—Length (skins), 282–302 (293); wing, 154–160.5 (157.5); tail, 132–141 (136); exposed culmen, 26.5–29 (27.5); depth of bill at nostrils, 10.5; tarsus, 41–42 (41.5); middle toe, 22.5–24 (23).^c

Northeastern portion of Mexican plateau, in States of Hidalgo (El Chico, Tulancingo) San Luis Potosi (mountains near Jesus Maria; Villar), southern Tamaulipas (Miquihuana), and southern Coahuila (Carneros); Guanajuato?

(?) *Cyanocitta sordida* (not *Garrulus sordidus* Swainson?) DUGES, *La Naturelle*, i, 1869, 139 (Guanajuato).

Aphelocoma sieberi potosina NELSON, Auk, xvi, Jan., 1899, 27 (mountains near Jesus Maria, San Luis Potosi, Mexico; coll. U. S. Nat. Mus.).

APHELOCOMA SIEBERII ARIZONÆ (Ridgway).

ARIZONA JAY.

Similar in coloration to *A. s. wollweberi*, but much larger; about the same size as *A. s. potosina*, but very much paler and duller colored.

Adult male.—Length (skins), 291–318.5 (303.5); wing, 163.5–173 (167); tail, 143.5–154.5 (149); exposed culmen, 27.5–32.5 (30.5); depth of bill at nostrils, 10–11 (10.5); tarsus, 41.5–44.5 (42.5); middle toe, 22.5–24 (23.5).^c

Adult female.—Length (skins), 282–305 (297.5); wing, 152.5–167.5 (162.5); tail, 136–151 (146.5); exposed culmen, 26.5–30 (28); depth of bill at nostrils, 9.9–10.7 (10.4); tarsus, 40.5–44 (42.5); middle toe, 21.8–22.6 (22.1).^c

^a Three specimens.

^b Four specimens.

^c Five specimens.

Southern Arizona (Santa Catalina, Santa Rita, Huachuca, and Chiricahua mountains), southwestern New Mexico (Grant County), and northern parts of Sonora (Cachuta and Bavispe rivers, etc.) and Chihuahua (San Diego).

Cyanocitta sordida (not *Garrulus sordidus* Swainson) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 587, part (Copper Mines, Arizona); Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 21 (Copper Mines); Cat. N. Am. Birds, 1859, no. 440.—COUES, Proc. Ac. Nat. Sci. Phila., 1866, 92 (Fort Buchanan and Copper Mines, Arizona).—COOPER, Orn. Cal., 1870, 305, part (s. Arizona).

[*Aphelocoma*] *sordida* COUES, Key N. Am. Birds, 1872, 166.

Aphelocoma sordida COUES, Check List, 1873, no. 237.

[*Cyanurus*] *sieberi* (not *Pica sieberii* Wagler) GRAY, Hand-list, ii, 1870, 4, no. 6093, part (Arizona).

Cyanocitta ultramarina, var. *arizonæ* RIDGWAY, Bull. Essex Inst., v, Dec., 1873, 199 (Fort Buchanan, Arizona; coll. U. S. Nat. Mus.).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 292.—HENSHAW, Zool. Exp. W. 100th Merid., 1875, pl. 12.

Cyanocitta ultramarina . . . var. *arizonæ* HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 124 (Camp Grant, etc., Arizona; habits); Zool. Exp. W. 100th Merid., 1875, 338 (30 miles s. of Apache, Camp Grant, and Rock Canyon, Arizona; habits, etc.).

[*Cyanocitta sordida*] var. *arizonæ* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, pl. 41, fig. 2.

[*Aphelocoma sordida*.] Subsp. α . *Aphelocoma arizonæ* SHARPE, Cat. Birds Brit. Mus., iii, 1877, 117 (Fort Bayard, New Mexico; Camp Crittenden, Arizona).

Aphelocoma sordida arizonæ RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 185; Nom. N. Am. Birds, 1881, no. 295.—BREWSTER, Bull. Nutt. Orn. Club, vi, 1881, 73 (Chiricahua Mts., s. Arizona); vii, 1882, 201 (Chiricahua and Santa Rita mountains, Arizona; habits; descr. nest and eggs; crit.).

Aphelocoma sieberii arizonæ RIDGWAY, Proc. U. S. Nat. Mus., viii, Sept. 2, 1885, 355.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 482.—SCOTT, Auk, iii, 1886, 81 (Santa Catalina Mts., s. Arizona; breeding habits; descr. nest and eggs); iv, 1887, 20 (Santa Catalina Mts.).—ALLEN, Auk, iv, 1887, 21 (crit.).—BENDIRE, Proc. U. S. Nat. Mus., x, 1888, 554 (Fort Huachuca, Arizona; habits; descr. nest and eggs); Life Hist. N. Am. Birds, ii, 1895, 380, pl. 5, figs. 19, 20 (eggs).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 276.

A[phelocoma] sieberii arizonæ RIDGWAY, Man. N. Am. Birds, 1887, 357.

Aphelocoma sieberi arizonæ ALLEN, Bull. Am. Mus. N. H., v, 1893, 37 (Cachuta and Bavispe rivers, n. e. Sonora; San Diego, n. w. Chihuahua).

Aphelocoma ultramarina . . . var. *arizonæ* COUES, Check List, 1874, p. 129 (no. 237).

Aphelocoma ultramarina arizonæ COUES, Check List, 2d ed., 1882, no. 357.

A[phelocoma] ultramarina arizonæ COUES, Key N. Am. Birds, 2d ed., 1884, 424.

Aphelocoma ultramarina (not *Cornus ultramarinus* Bonaparte) SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1887, 493, part.

APHELOCOMA SIEBERII WOLLWEBERI (Kaup).

ZACATECAS JAY.

Similar in coloration to *A. s. arizonæ*, but much smaller; similar in dimensions to *A. s. potosina*, but the blue of a light dull cerulean hue, or intermediate between this and glaucous-blue; back and scapulars

usually distinctly gray (deep ash gray to bluish gray, rarely grayish blue); under parts paler, more extensively white posteriorly.

Adult male.—Length (skins), 274.5–294.5 (284); wing, 148–164.5 (158); tail, 128.5–144 (135.5); exposed culmen, 24.5–27.5 (27); depth of bill at nostrils, 9.5–10.5 (10); tarsus, 39–42 (40.5); middle toe, 20.5–24 (23).^a

Adult female.—Length (skins), 272–288.5 (281); wing, 150.5–155 (154.5); tail, 129–136 (132.5); exposed culmen, 24–27 (25); depth of bill at nostrils, 8.5–10.5 (9.5); tarsus, 37–41 (39); middle toe, 19.5–24.5 (22).^b

Northwestern and central portions of Mexican plateau, in States of western San Luis Potosi (Villar), Zacatecas (Valparaiso, Plateado, Monte Escobedo, Sierra Madre), northern Jalisco (Bolaños, Florencio, Colatlan), Durango (El Salto; La Providencia), southwestern Chihuahua (Jesus Maria, Colonia Garcia, etc.), and eastern Sinaloa (Sierra de Choix), and Territory of Tepic (Santa Teresa).

Aphelocoma wollweberi ^c KAUP, Journ. für Orn., ii, no. 12, Suppl., Nov., 1854, p. iv, footnote (Zacatecas, Mexico; coll. Wollweber).

Aphelocoma gracilis MILLER, Auk, xiii, Jan., 1896, 34 (Sierra Bolaños, Jalisco, Mexico; coll. G. S. Miller, jr.).

APHELOCOMA SIEBERII COUCHI (Baird).

COUCH'S JAY.

Similar to *A. s. potosina* in coloration, but much smaller and bill more slender; similar also to *A. s. wollweberi*, but still smaller, with larger bill.

Adult male.—Length (skins), 261.5–289.5 (273.5);^b wing, 144.5–152.5 (147.5);^b tail, 124.5–137 (129);^b exposed culmen, 25–28 (27);^a depth of bill at base, 9.5–12 (10.5);^b tarsus, 39–43.5 (41);^b middle toe, 21.5–25.5 (23.5).^b

Adult female.—Length (skin), 261.5–269 (265.5);^b wing, 142–152.5 (147.5); exposed culmen, 25–26.5 (25.5); depth of bill at base, 10–11.5 (10.5); tarsus, 39–40.5 (39.5); middle toe, 22–23.5 (22.5).^a

Southern Nuevo Leon (Guajuco,^e Monterey, Parras, etc.) to southwestern Texas (Chisos Mountains).

^aSeven specimens.

^bSix specimens.

^c"Ich unterscheide *Aphelocoma Wollweberi*, die zwischen *ultramarina* und *sieberi* steht. Sie ist weniger intensiv blau, mit röthlich grauem Rücken. Wangen und Ohrfedern dunkler blau. Zügel schwärzlich. Schwanz schwach gegabelt, in dem die mittleren Schwanzfedern kürzer als die seitlichen sind. In geeignetem Licht zeigen die Schwanzfedern Spuren von Binden.

"*Wollweberi*, Länge 10 Par.", Schnabel 13"', Flügel 5" 5"', Schwanz 4" 5"–4" 9".

"*Ultramarina*, Länge 11 Par.", Schnabel 13"', Flügel 5½", Schwanz 4" 5"–4" 9".

"*Sieberi*, Länge 13 Par.", Schnabel 13"', Flügel 6" 10"', Schwanz 6¼".

"Zacatecas, durch Hrn. Wollweber in hiesiger Sammlung."

^dTwo specimens.

^eGuajuco is about 18 miles southeast of Monterey, and is the type locality, as shown by the original labels of the type specimens.

Cyanocitta ultramarina (not *Corvus ultramarinus* Bonaparte) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 588 (Monterey, Nuevo Leon, Mexico); ed. 1860 (Birds N. Am.), atlas, pl. 60, fig. 2; Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 45, pl. 22, fig. 2 (Monterey west to Parras); Cat. N. Am. Birds, 1859, no. 441.

[*Cyanurus*] *ultramarinus* GRAY, Hand-list, ii, 1870, 4, no. 6095, part.

Aphelocoma ultramarina SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1887, 493, part.

[*Cyanocitta*] *couchii* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 588, in text ("Monterey," i. e., Guajuco, 18 miles s. e. of Monterey, Nuevo Leon; coll. U. S. Nat. Mus.).

[*Cyanocitta ultramarina*] var. *couchi* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 284.

Cyanocitta ultramarina, var. *couchi* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 293.

[*Aphelocoma ultramarina*.] Subsp. α . *Aphelocoma couchi* SHARPE, Cat. Birds Brit. Mus., iii, 1877, 116.

Aphelocoma ultramarina couchii RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 185, 229.

Aphelocoma ultramarina couchi RIDGWAY, Nom. N. Am. Birds, 1881, no. 294.

[*Aphelocoma*] *couchi* RIDGWAY, Man. N. Am. Birds, 1887, 357.

Aphelocoma couchi MILLER, Auk, xiii, 1896, 34, 36, in text.—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 276.

[*Cyanocitta*] *sordida* (not *Garrulus sordidus* Swainson) SCLATER and SALVIN, Nom. Av. Neotr., 1873, 39, part.

Aphelocoma sieberii couchi OBERHOLSER, Auk, xix, July, 1902, 300 (Chisos Mts., s. w. Texas).

(?) **APHELOCOMA ULTRAMARINA** (Bonaparte).

ULTRAMARINE JAY.

Similar in size and coloration to *A. sieberii sieberii*, but tip of tail "perfectly even" or truncated.^a
"Mexico."

[*Corvus*] *ultramarinus* BONAPARTE, Journ. Acad. Nat. Sci. Phila., iv, pt. ii, no. 12, May, 1825, 387 (Mexico).

[*Cyanocitta*] *ultramarinus* BONAPARTE, Consp. Av., i, 1850, 378.

^a "C. *ultramarinus*. Cereuleus subtus cinerascens-albidus, cauda equali.

"Length, thirteen inches. Bill one inch and a half long, strongly notched at tip, and with the feet black; incumbent setaceous feathers of the base of the bill, partly black and partly blue; whole plumage above, including the wings and tail, bright azure, most vivid and somewhat sericeous on the head and tail-coverts, duller and slightly intermixed with dusky on the back; inner webs and tips of quill feathers dusky; shafts of the wings and tail feathers black; lora black; cheeks dull blackish blue; chin whitish, intermixed with black bristles; whole inferior surface dirty whitish, more tinged with cinereous on the anterior parts, and becoming purer towards the vent; inferior wing and tail-coverts slightly intermixed with blue; inferior surface of the wings and of the tail dusky-gray, the latter darker; wings when closed reaching almost to the middle of the tail, which is seven inches long, and perfectly even at tip." (Original description.)

This very doubtful form continues to be known only from Bonaparte's description, quoted above. It is probably the same as one of the larger forms of *A. sieberii*, but which one can not be determined without examination of the type.

Cyanocitta ultramarina STRICKLAND, Ann. and Mag. N. H., xv, 1845, 260.—GAMBEL, Journ. Ac. Nat. Sci. Phila., i, 1847, 45 (diagnosis).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 284, footnote.

[*Cyanocitta ultramarina*] var. *ultramarina* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 284.

[*Cyanurus*] *ultramarinus* GRAY, Hand-list, ii, 1870, 4, no. 6095.

A[*phelocoma*] *ultramarina* CABANIS, Mus. Hein., i, Oct., 1851, 221, footnote.—RIDGWAY, Man. N. Am. Birds, 1887, 357.

Aphelocoma ultramarina SHARPE, Cat. Birds Brit. Mus., iii, 1877, 115.

APHELOCOMA UNICOLOR UNICOLOR (DuBus).

UNICOLORED JAY.

Adults (sexes alike).—Entire plumage uniform dull cobalt blue, except lores and under surface of rectrices, which are dusky, and under surface of remiges, which are brownish gray; bill, legs, and feet black; iris brown.

Young.—Plumage of head, neck, and body, including tail-coverts, lesser wing-coverts, and under wing-coverts, uniform sooty, or dark grayish brown; remiges, rectrices, and larger wing-coverts as in adults; bill partly light-colored (the mandible especially).

Adult male.—Length (skins), 274.5–321 (310); wing, 154.5–169 (161.5); tail, 143.5–159 (153.5); exposed culmen, 28–30 (29); depth of bill at nostrils, 10–11 (10.5); tarsus, 41–43.5 (42); middle toe, 21–23.5 (22.5).^a

Adult female.—Length (skins), 294.5–310.5 (303); wing, 157–165 (161); tail, 148–160.5 (154.5); exposed culmen, 28.7–30 (29); depth of bill at nostrils, 11; tarsus, 40.5–42 (41.5); middle toe, 20.5–23 (21.5).^b

Southeastern Mexico, in States of Vera Cruz, Puebla, and Mexico.

Cyanocorax unicolor DU BUS, Bull. Ac. Roy. Belg., xiv, pt. ii, 1847, 103 (Mexico: coll. Brussels Mus.); Esquis. Orn., 1848, pl. 17.—SCLATER, Proc. Zool. Soc. Lond., 1857, 204 (Jalapa, Vera Cruz); 1859, 365 (do.).—SCHLEGEL, Mus. Pays-Bas, Coraces (no. 23, livr. 9), 1867, 49 (Jalapa).

[*Cyanocitta*] *unicolor* BONAPARTE, Consp. Av., i, 1850, 378 (Mexico).—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 39, part (Mexico).

Cyanocitta unicolor SCLATER, Cat. Am. Birds, 1862, 143 (Jalapa); Proc. Zool. Soc. Lond., 1864, 175 (Valley of Mexico).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 284, footnote, part (Cordova and Mirador, Vera Cruz).

C[*yanocitta*] *unicolor* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 284, part.

Aphelocoma unicolor SHARPE, Cat. Birds Brit. Mus., iii, 1877, 118 (Jalapa).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1887, 494, part (Valley of Mexico; Puebla; Jalapa).—LANTZ, Trans. Kans. Ac. Sci. for 1896–97 (1899), 222 (Coatepec, Vera Cruz).

A[*phelocoma*] *unicolor* RIDGWAY, Man. N. Am. Birds, 1887, 358, part.

[*Cyanurus*] *unicolor* GRAY, Hand-list, ii, 1870, 5, no. 6106 (Mexico).

(*Cyanocorax concolor*) CASSIN, Proc. Ac. Nat. Sci. Phila., iv, Feb., 1848, 26 ("South America"; coll. Acad. Nat. Sci. Phila.), 90 (Puebla, Mexico).

(?) *Cyanocitta ultramarina* (not *Corvus ultramarinus* Bonaparte) SUMICHRIST, Mem. Bost. Soc. N. H., i, 1869, 554 (alpine reg. Vera Cruz).

^aSix specimens, from Jico, Vera Cruz. ^bTwo specimens, from Jico, Vera Cruz.

APHELOCOMA UNICOLOR CŒLESTIS, new subspecies.^a

CERULEAN JAY.

Similar to *A. u. unicolor* but larger, and the blue color lighter, more cerulean.

Adult male.—Length (skins), 321.5–330 (325.9); wing, 165–168 (167); tail, 155–159.5 (157.5); exposed culmen, 28.7–29.2 (29); depth of bill at nostrils, 10.5; tarsus, 43–44.5 (44); middle toe, 23–23.5 (23.1).^b

Adult female.—Length (skin), 317.5; wing, 167.5; tail, 155.5; exposed culmen, 28; depth of bill at nostril, 10.5; tarsus, 43.5; middle toe, 23.^c

Highlands of Guatemala (Totonicapam, Quiche, Chilasco, etc., 4,000 to 10,000 feet), and Chiapas (San Cristobal).

Cyanocitta unicolor (not *Cyanocorax unicolor* Du Bus) SALVIN, Ibis, 1866, 194 (Totonicapam, Quiche, and Chilasco, Vera Paz, Guatemala).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 284, footnote, part (Guatemala).

[*Cyanocitta*] *unicolor* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 39, part (Guatemala).

[*Cyanocitta*] *unicolor* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 284, part (Guatemala).

Aphelocoma unicolor SHARPE, Cat. Birds Brit. Mus., iii, 1877, 118, part (Vera Paz).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1887, 494, part (Totonicapam, Quiche, and Chilasco, Guatemala).

A[phelocoma] *unicolor* RIDGWAY, Man. N. Am. Birds, 1887, 358, part (Guatemala).

Genus CYANOCITTA Strickland.

Cyanocitta STRICKLAND, Ann. and Mag. Nat. Hist., xv, 1845, 261. (Type, *Corvus cristatus* Linnæus.)

Cyanogarrulus BONAPARTE, Proc. Zool. Soc. Lond., 1850, 83; Consp. Av., i, May 5, 1850, 376. (Type, *Corvus cristatus* Linnæus.)

Lophocorax KAUP, Journ. für Orn., ii, Nov., 1854, p. lv. (Type, *Corvus stelleri* Gmelin.)

Rather small Garrulinae with the head conspicuously crested.

Coloration.—Upper parts mainly blue, the secondaries and tail (sometimes greater coverts also) barred with black; head black or varied with black; lower parts uniform blue, or whitish with a black collar across chest.

Nidification.—Nest usually in trees (rarely in abandoned buildings), open above, rather bulky, composed of dry twigs, etc., lined with fine rootlets or similar materials, usually with plastering of mud between lining and outer portion. Eggs 3–6, light greenish, olive, or clay color, more or less speckled with deep olive, brown, lavender, etc.

Range.—North America in general, including highlands of Mexico and Guatemala.

^a Type, no. 144685, coll. U. S. Nat. Mus. (Biological Survey collection), adult male, San Cristobal, Chiapas, Sept. 24, 1895; Nelson and Goldman.

^b Three specimens, from San Cristobal, Chiapas.

^c One specimen, from San Cristobal.

The possession of a conspicuous crest will readily serve to distinguish members of this genus from any other American jays except *Calocitta*, which has the tail excessively elongated and graduated and the nostrils exposed; and certain species of the purely tropical genera *Cissilopha*, *Cyanocorax*, and *Uroleuca*, in all of which (as in *Calocitta*) the crest is very different in shape, and the size much greater.

The relationships of *Cyanocitta* are decidedly with *Aphelocoma* and related American genera, and not with the Palearctic genus *Garrulus*, to which *Cyanocitta* bears some superficial resemblance. *Garrulus* has the bill much deeper and more compressed, with the gonys strongly convex; the tail much shorter than the wing and nearly even; the primaries much longer, more pointed, and rigid, and the style of coloration very different.

KEY TO THE SPECIES AND SUBSPECIES OF CYANOCITTA.

- a. Under parts whitish (more brownish gray on breast and sides), interrupted by a black collar across chest; greater wing-coverts, secondaries, and rectrices broadly tipped with white. (*Cyanocitta cristata*.)
 - b. Larger and brighter colored (adult male averaging wing 131.6, tail 129.3, exposed culmen 25.1, tarsus 35); white terminal spot on outermost rectrix averaging 26.9 in length. (Eastern North America, except Florida.)
 - Cyanocitta cristata cristata* (p. 347)
 - bb. Smaller and duller in color (adult male averaging wing 126, tail 119.9, exposed culmen 24.4, tarsus 33.5); white terminal spot on outermost rectrix averaging 24.1 in length. (Peninsula of Florida.) *Cyanocitta cristata florincola* (p. 350)
 - aa. Under parts blue (sometimes dusky or sooty anteriorly); wing-coverts, secondaries, and rectrices without white tips. (*Cyanocitta stelleri*.)
 - b. No white spot over eye.
 - c. Head (including crest) and neck black or sooty black; back sooty slate color to sooty black; rump, upper tail-coverts, and posterior under parts dull cerulean blue to china blue.
 - d. Larger (adult male averaging wing 156.2, tail 143.1); coloration darker, with the blue more purplish. (Queen Charlotte Islands and Prince of Wales Island, British Columbia.) *Cyanocitta stelleri carlottae* (p. 354)
 - dd. Smaller (adult male averaging not more than wing 151.5, tail 140); coloration less dark, with blue less purplish.
 - e. Back and foreneck dark sooty to sooty slate-black, that of foreneck grading more gradually into blue of under parts; forehead usually with few streaks of blue (sometimes with none); blue color darker; size slightly larger (adult male averaging wing 151.5, tail 138.6, exposed culmen 31, tarsus 46.5). (Coasts of Puget Sound northward to eastern shores of Cook Inlet, including Vancouver Island and other coast islands except Prince of Wales and Queen Charlotte group.)
 - Cyanocitta stelleri stelleri* (p. 351)
 - ee. Back and foreneck slaty brown or brownish slate, that of foreneck more abruptly contrasted with blue of under parts; forehead more conspicuously streaked with blue; blue color lighter, more greenish; throat more extensively streaked with pale grayish; size slightly less (adult male averaging wing 150.5, tail 140, exposed culmen 27.7, tarsus 44.5). (Coast district from Monterey County, California, northward to the Columbia River.^a) *Cyanocitta stelleri carbonacea* (p. 354)

^a The area between the Columbia River and Puget Sound occupied by intergrades between this and *C. s. stelleri*.

- cc. Head (including crest) and neck grayish brown, the crest often tinged with blue; back light brownish gray or grayish brown; rump, upper tail-coverts, and posterior under parts light cerulean or turquoise blue. (Sierra Nevada and San Bernardino ranges of California and mountains of northern Lower California.)^a

Cyanocitta stelleri frontalis (p. 355)

- bb. A white or grayish white spot immediately above eye.

- c. Head and foreneck black (crest sometimes tinged with blue).

- d. Back brownish gray or sooty, without distinct blue tinge; crest very slightly, if at all, tinged with blue.

- e. Back dusky grayish brown, or sooty; superciliary spot smaller, or else more grayish; forehead streaked with light blue or else streaks obsolete; blue of rump, etc., deeper. (More northern Rocky Mountains, from Wyoming,^b Utah,^b Idaho, and eastern Washington northward.)

Cyanocitta stelleri annectens (p. 357)

- ee. Back clear or light brownish gray or smoke gray, strongly contrasted with black of crest; superciliary spot larger, or else purer white; forehead conspicuously streaked with bluish white; blue of rump, etc., paler. (More southern Rocky Mountains, from Colorado,^c and Utah^c to States of Zacatecas and northern Jalisco, west-central Mexico.)

Cyanocitta stelleri diademata (p. 358)

- dd. Back distinctly blue (dull blue or grayish blue); crest distinctly tinged with blue. (South-central Mexico, in States of Vera Cruz, Puebla, Morelos, Mexico, and Michoacan.).....*Cyanocitta stelleri asteca* (p. 361)

- cc. Head and foreneck blue (sides of head more blackish). (Southern Mexico, in States of Hidalgo, Vera Cruz, Oaxaca, Guerrero, Colima, and Chiapas; Guatemala; Honduras.).....*Cyanocitta stelleri coronata* (p. 362)

CYANOCITTA CRISTATA CRISTATA (Linnaeus).

BLUE JAY.

Adults (sexes alike).—Pileum (including crest), hindneck, back, scapulars, rump, upper tail-coverts, and lesser and middle wing-coverts plain dull campanula blue or grayish violet-blue, the frontal feathers sometimes tipped with paler blue or bluish white; superciliary space, suborbital and malar regions, greater part of auricular region, chin, and throat very pale bluish gray; a loreal patch (extending more or less broadly across base of forehead), narrow postocular streak, and a black collar beginning on nape (beneath crest) and extending thence downward across end of auricular region and along side of neck and connecting with a broader, somewhat crescentic patch across chest, black; greater wing-coverts, secondaries, and rectrices rich cobalt or azure blue, broadly tipped with white (except middle pair of rectrices), and barred with black; primaries plain azure blue, paler on exterior quills, the portion beyond sinuated edge grayish; breast, sides, and flanks smoke gray or drab-gray (less brown in winter plumage), paler posteriorly; abdomen, anal region, and under tail-coverts white; under wing-coverts dusky blue; bill and feet black; iris brown.

^a Intergrading with *C. s. carbonacea* on east slope of Northern Coast Range and southern portion of Southern Coast Range.

^b In winter only.

^c Breeding.]

Young.—Remiges and rectrices as in adults, but white tips less sharply defined (sometimes tinged with grayish) and black bars usually narrower or less distinct; black markings of head and neck less distinct, grayish black or dusky; pileum (including short crest) bluish gray; back, scapulars, rump, upper tail-coverts, and smaller wing-coverts dull grayish; greater wing-coverts without black bars.

Adult male.—Length (skins), 247.5–295 (265.5); wing, 125–148 (131.5); tail, 120.5–147.5 (129); exposed culmen, 23–28 (25); depth of bill at nostrils, 8–10 (9.5); tarsus, 33–37 (35); middle toe, 19–22.5 (20.5); length of white patch on inner web of lateral tail-feather, 21.5–33.5 (27).^a

Adult female.—Length (skins), 242–279.5 (262.5); wing, 120–139 (129); tail, 117–130 (122.5); exposed culmen, 22–26 (24); depth of bill at base, 8–10 (9); tarsus, 31.5–36.5 (34); middle toe, 18–21 (19.5); length of white patch on inner web of lateral tail-feather, 20–31.5 (26).^b

^a Thirty-four specimens.

^b Eighteen specimens.

Series from different parts of the country average as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at nos- trils.	Tarsus.	Middle toe.	Length of white tip to outer- most rectrix.
MALES.							
Five specimens from Massachusetts to Minnesota and northward	137.5	134.5	25.5	9.5	36.5	20.5	26
Nine specimens from Pennsylvania, Maryland, District of Columbia, and Virginia	134	132	25	10	35	21	27.5
Nine specimens from southern Indiana and Illinois	129.5	127	25	9.5	34	20.5	29
Ten specimens from Louisiana, Missis- sippi, and Alabama	128.5	126	24.5	10	35.5	20	25
One specimen from South Carolina (Aiken)	134	133.5	25	10	35	21	27
Two specimens from Texas	131	128	27.5	10	36.5	20	25.5
Eleven specimens from Florida (= <i>C. cristata florincola</i>)	126	120	24.5	9	33.5	20	24
FEMALES.							
Three specimens from Massachusetts, New York, and Minnesota	134	127	24	9	35	19.5	26
Five specimens from Pennsylvania and Virginia	131	122.5	24.5	9	33.5	18.5	27
Five specimens from southern Indiana and Illinois	125	119.5	23.5	9	34	20.5	27
Three specimens from Louisiana and Alabama	125	124	24.5	9	35.5	19.5	23
Two specimens from Texas	132	123	24.5	10	34	19	22.5
Five specimens from Florida (= <i>C. cris- tata florincola</i>)	121	113	24	9	33.5	18.5	21

Temperate eastern North America, except peninsula of Florida; north on Atlantic coast to Nova Scotia, Prince Edward Island, New Brunswick (resident), etc., in the interior to about latitude 52°, casually to 56°; west to eastern Assiniboia, eastern North and South Dakota, eastern half of Nebraska, eastern two-thirds of Kansas, eastern Oklahoma and eastern half (approximately) of Texas; south to the Gulf coast, except in Florida.

[*Corvus*] *cristatus* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 106 (based on the *Blew Jay* Catesby, Nat. Hist. Carolina, i, 13, pl. 13; *The Blue Jay*, *Pica glandaria carolinensis cærulea*, Edwards, Gleanings Nat. Hist. v, 60, pl. 239; *Le Geay bleu, du Canada*, Brisson, Orn. ii, 55; Buffon, Pl. Col., pl. 529); ed. 12, i, 1766, 157.—GMELIN, Syst. Nat., i, 1788, 369.—LATHAM, Index Orn., i, 1790, 158.

Corvus cristatus WILSON, Am. Orn., i, 1808, 11, pl. 1, fig. 1.—DOUGHTY, Cab. Nat. Hist., 1832, 62, pl. 6.—BONAPARTE, Ann. Lyc. N. Y., iii, 1828, 58.—NUTTALL, Man. Orn. U. S. and Can., i, 1832, 224.—AUDUBON, Orn. Biog., ii, 1834, 11; v, 1839, 475, pl. 102.

Garrulus cristatus VIEILLLOT, Nouv. Dict. d'Hist. Nat., xii, 1817, 477; Enc. Méth., ii, 1823, 890; Gal. Ois., 1834, 160, pl. 102.—SWAINSON and RICHARDSON, Fauna Bor.-Am., ii, 1831, 293.—AUDUBON, Synopsis, 1839, 154; Birds Am., oct. ed., iv, 1842, 110, pl. 231.—MAXIMILIAN, Journ. für Orn., 1858, 192 (Indiana; Missouri).—SCHLEGEL, Mus. Pays-Bas, Coraces, 1867, 62.—TRIPPE, Proc. Essex Inst., vi, 1871, 177 (Minnesota, resident).

P[ica] cristata WAGLER, Syst. Av., 1827, Pica, sp. 8.

Cyanurus cristatus SWAINSON, Fauna Bor.-Am., ii, 1831, 495.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 580.—DRESSER, Ibis, 1865, 494 (s. Texas).—COUES, Check List, 1873, no. 234, part; Birds N. W., 1874, 214; Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 607 (Pembina, North Dakota).—MCCHESNEY, Bull. U. S. Geol. and Geog. Surv. Terr., v, 1879, 80 (Fort Sisseton, South Dakota).

[*Cyanurus*] *cristatus* GRAY, Hand-list, ii, 1870, 3, no. 6085.—COUES, Key N. Am. Birds, 1872, 165, part.

Cyanura cristata BAIRD, Cat. N. Am. Birds, 1859, no. 434.—BLAKISTON, Ibis, 1862, 8 (Forks of Saskatchewan).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 273, part, pl. 42, fig. 3.—ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 138 (Fort Hays, w. Kansas, abundant), 178 (e. Kansas).

[*Cyanura*] *cristata* NELSON, Bull. Essex Inst., viii, 1876, 112 (n. e. Illinois, abt. resid.).

Cyanocorax cristatus BONAPARTE, Geog. and Comp. List, 1838, 27.—WOODHOUSE, in Rep. Sitgreaves' Expl. Zúñi and Col. R., 1853, 77 (Indian Territory; Texas).

[*Cyanocorax*] *cristatus* GRAY, Gen. Birds, ii, 1845, 307.

Cyanocitta cristata STRICKLAND, Ann. and Mag. Nat. Hist., xv, 1845, 261.—SCLATER, Cat. Am. Birds, 1862, 142.—LAWRENCE, Ann. Lyc. N. Y., viii, 1866, 289 (vic. New York City).—SHARPE, Cat. Birds Brit. Mus., iii, 1877, 107 (Toronto, Ontario; Ann Arbor, Michigan; 49th Parallel).—COUES, Bull. Nutt. Orn. Club, v, 1880, 98; Check List, 2d ed., 1882, no. 349.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 289, part; Orn. Illinois, i, 1889, 335.—CHAMBERLAIN, Bull. N. H. Soc. New Bruns., i, 1882, 43 (New Brunswick, resid.).—NEHRING, Bull. Nutt. Orn. Club, vii, 1882, 168 (s. e. Texas, breeding); Our Native Birds, etc., ii, 1896, 317, pl. 17, fig. 1.—OGILBY, Scient. Proc. Roy. Dubl.

- Soc., iii, 1882, 50 (Navarro Co., n. e. Texas, resident; habits).—AGERSBOG, Auk, ii, 1885, 282 (s. e. South Dakota, resid.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 477.—SETON, Auk, iii, 1886, 321 (w. Manitoba, summer).—COOKE, Bird Migr. Miss. Val., 1888, 157 (dates, etc.).—HABBROUCK, Auk, vi, 1889, 239 (Eastland Co., Texas).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1891, 565 (localities in Manitoba).—GOSS, Birds Kansas, 1891, 377 (w. to beyond mid. of State).—DWIGHT, Auk, x, 1893, 10 (Prince Edwards I.).—NUTTING, Bull. Labr. N. H. Univ. Iowa, ii, 1893, 273 (near Chemawawin, lower Saskatchewan).—BENDIRE, Life Hist. N. Am. Birds, ii, 1895, 356, pl. 5, figs. 5, 6 (eggs).—BEAL, Yearbook U. S. Dept. Agric. for 1896, 197-206, fig. 40 (food, etc.).—KENNARD, Auk, xv, 1898, 269 (nesting).—DEANE, Auk, xvi, 1899, 182 (habits).—MORRELL, Auk, xvi, 1899, 251 (Cumberland Co., Nova Scotia, frequent).—FLEMING, Auk, xviii, 1901, 40 (Party Sound and Muskoka, n. w. Ontario, resident).—CRAWFORD, Proc. Nebr. Orn. Un., sec. ann. meeting, 1901, 77 (Sioux Co., w. Nebraska, May).—GRAVES, Proc. Nebr. Orn. Un., sec. ann. meeting, 1901, 84 (Valentine, w. Nebraska, Sept.).—COUBEAUX, Ottawa, Nat., 1900, 29 (s. Saskatchewan, resident).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 271, part.
- [*Cyanocitta*] *cristata* CABANIS, Mus. Hein., i, 1851, 221.—COUES, Key N. Am. Birds, 2d ed., 1884, 421.—RIDGWAY, Man. N. Am. Birds, 1887, 358.
- [*Cyanogarrulus*] *cristatus* BONAPARTE, Consp. Av., i, 1850, 376.
- Cyanocitta cristata florincola* (not of Coues) AMERICAN ORNITHOLOGISTS' UNION, Check List, 2d ed., 1895, no. 477a, part (Gulf coast to Texas).—BECKHAM, Proc. U. S. Nat. Mus., x, 1887, 669 (Leon Springs, San Antonio, and Corpus Christi, Texas); Auk, v, 1888, 112 (Leon Springs; San Antonio).—ALLEN, Auk, v, 1888, 324 (Mandeville, Louisiana).—BENDIRE, Life Hist. N. Am. Birds, ii, 1895, 361, part (Louisiana; Texas).
- [*Cyanocitta*] *cristata florincola* RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 353, part (Gulf coast to Texas).

CYANOCITTA CRISTATA FLORINCOLA Coues.

FLORIDA BLUE JAY.

Similar to *C. c. cristata*, but smaller, and coloration averaging paler and duller, with white tips to greater wing-coverts, secondaries and rectrices smaller.

Adult male.—Length (skins), 244-255 (253.5); wing, 119.5-136 (126); tail, 114.5-125.5 (120); exposed culmen, 23.5-26 (24.5); depth of bill at nostrils, 9-9.5 (9); tarsus, 31.5-35 (33.5); middle toe, 18-23 (20); length of white spot on inner web of lateral tail-feather, 20.5-29 (24).^a

Adult female.—Length (skins), 241.5-249 (244); wing, 117.5-127 (121); tail, 108-117 (113.5); exposed culmen, 23-25.5 (24); depth of bill at nostrils, 8-9.5 (9); tarsus, 32-34.5 (33.5); middle toe, 17-19.5 (18.5); length of white spot on inner web of lateral tail-feather, 19.5-25.5 (21).^b

^a Eleven specimens.

^b Five specimens.

Peninsula of Florida.^a

Cyanurus cristatus (not *Corvus cristatus* Linnæus) ALLEN, Bull. Mus. Comp. Zool., ii, 1871, 297 (e. Florida; crit.; measurements).—COUES, Check List, 2d ed., 1882, no. 234, part.—MAYNARD, Birds E. N. Am., 1881, 162, part.

[*Cyanurus*] *cristatus* COUES, Key N. Am. Birds, 1872, 165, part.

Cyanura cristata MERRIAM, Am. Nat., viii, 1874, 87 (St. Johns R. and Okahumkee, Florida; crit.).

Cyanocitta cristata RIDGWAY, Nom. N. Am. Birds, 1881, no. 289, part.—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 271, part (Florida).

C[yanocitta] c[ristata] florincola COUES, Key N. Am. Birds, 2d ed., 1884, 421 (Florida).

Cyanocitta cristata florincola AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 477a; 2d ed., 1895, no. 477a, part.—CHAPMAN, Auk, v, 1888, 272 (Gainesville, Florida).—SCOTT, Auk, vi, 1889, 319 (Tarpon Springs, Florida; not at Punta Rassa nor Key West).—BENDIRE, Life Hist. N. Am. Birds, ii, 1895, 361, part, pl. 5, figs. 7, 8 (eggs).

C[yanocitta] cristata florincola RIDGWAY, Man. N. Am. Birds, 1887, 353; 2d ed., 1896, 353, part.

CYANOCITTA STELLERI STELLERI (Gmelin).

STELLER'S JAY.

Adult male.—Head (including crest), neck, and upper portion of chest, plain black or sooty black, the forehead usually more or less streaked with blue (cerulean or azure) and chin and upper throat usually more or less streaked with pale grayish; back and scapulars plain dark sooty brown (less brown or more slaty in fresh plumage); rump and under parts posterior to chest blue, varying from greenish blue (china blue) to a less greenish hue, the upper tail-coverts similar, but brighter (almost cerulean blue); wing-coverts and primaries dull cerulean or sevrès blue, the greater coverts usually with narrow (sometimes indistinct) bars of black; secondaries deep cobalt or dull ultramarine blue, with four to six innermost ones (including tertials) marked with sharply defined (usually very distinct) curved bars of black; tail dull cobalt blue, with terminal portion usually distinctly barred with black and with indications of bars farther toward base; bill, legs, and feet black; iris brown; length (skins), 282–317 (300.2); wing, 144–160.5 (151.5); tail, 133–150 (138.6); exposed culmen, 27.5–32 (31); tarsus, 44.5–50.5 (46.5); middle toe, 22.5–26 (24.7).^b

Adult female.—Similar to the male and often quite undistinguishable, but usually slightly smaller, with black bars on secondaries and

^a It is exceedingly difficult to draw the line satisfactorily between this form and *C. c. cristata*, for the reason that, as in similar cases, there is a gradual transition between the extremes. After carefully examining, comparing, and measuring a very large series, however, it seems that there is upon the whole more difference between Florida specimens and those from other Southern States than between the latter and northern examples. This is no less true of coloration than of size. (See average measurements under *C. cristata*, on page 348, footnote.)

^b Twelve specimens.

tail less distinct, sometimes obsolete; length (skins), 280–313 (301.3); wing, 142.5–157 (149.1); tail, 128.5–147 (137.4); exposed culmen, 27.5–31 (30); tarsus, 44–47.5 (45.8); middle toe, 22.5–25.5 (24.1).^a

Young.—Wings and tail as in adults, but the blue usually more greenish (china blue to cerulean blue) and usually (?) without distinct black bars on secondaries or rectrices; under parts, rump, and and upper tail-coverts dull slate-grayish, the former becoming darker and more sooty anteriorly; head and neck plain sooty or dark sooty slate, the forehead without any blue streaks.

Coniferous forests of northern Pacific coast district, from shores of Puget Sound northward to eastern shores of Cook Inlet, including Vancouver Island and other coast islands, except Prince of Wales island and the Queen Charlotte group.

[*Corvus*] *stelleri* GMELIN, Syst. Nat., i, 1788, 370 (Nootka Sound, Vancouver Island; based on *Steller's Crow* Latham, Gen. Synop. Birds, i, 389; Pennant, Arct. Zool., ii, pt. i, 249).—LATHAM, Index Orn., i, 1790, 158.

Corvus stelleri PALLAS, Zool. Rosso-Asiat., i, 1826, 393, pl. 17 (promontory of St. Elias, Alaska).—BONAPARTE, Zool. Journ., iii, 1827, 49; Ann. Lyc. N. Y., iii, 1828, 433; Am. Orn., ii, 1828, 44, pl. 13, fig. 1.—NUTTALL, Man. Orn. U. S. and Can., i, 1832, 229.

Garrulus stelleri VIEILLLOT, Nouv. Dict. d'Hist. Nat., xii, 1817, 481; Enc. Méth., ii, 1823, 893.—SWAINSON, Fauna Bor.-Am., ii, 1831, 294, part (not pl. 54, which = *C. s. annectens*).—SCHLEGEL, Mus. Pays-Bas, Coraces, 1867, 62 (Sitka; Nootka Sound).

P[ica] stelleri WAGLER, Syst. Nat., 1827, Pica, sp. 10; Isis, 1839, 750.

[*Cyanurus*] *stelleri* SWAINSON, Fauna Bor.-Am., ii, 1831, 495.

Cyanurus stelleri COUES, Check List, 1873, no. 235, part.

[*Cyanurus*] *stellerii* COUES, Key N. Am. Birds, 1872, 165, part.

^aTen specimens.

Specimens from Vancouver Island, Sitka, and Kenai peninsula compare in average measurements as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Four adult males from Vancouver Island.....	153.8	141.1	30.8	48.1	24.4
Six adult males from Sitka.....	150	137.4	29.4	45.8	24.5
Six adult males from Kenai peninsula (west side).....	154.1	139.4	30.6	44.2	25
FEMALES.					
Three adult females from Vancouver Island.....	147	137.3	28.8	47	24.7
Four adult females from Sitka.....	151	139	29.1	46	24
Three adult females from Kenai peninsula (west side).....	151.3	137.2	30	43.8	25

The series from Cook Inlet, on which Mr. Chapman's *C. s. borealis* was based, are in very fresh fall plumage and therefore distinctly darker and more slaty in color of back, etc., and slightly richer blue than specimens taken at other seasons, which greatly predominate in collections. Compared with specimens from Vancouver Island and other more southern localities taken at the same season they are, however, nowise different, so far as I am able to discern.

- Cyanura stelleri* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 581, part (Alaska; Cape Flattery, Straits of Fuca, Fort Steilacoom, and Fort Vancouver, Washington; Cat. N. Am. Birds, 1859, no. 435, part.—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 214, part (Washington).—LORD, Proc. Roy. Art. Inst., iv, 1864, 122 (British Columbia); Naturalist in Vancouver, ii, 1866, 73.—DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 286 (Sitka, Alaska; British Columbia).—COOPER, Orn. Cal., 1870, 298, part (description).—RIDGWAY, Am. Journ. Sci., v, 1873, 43 (crit.).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 277, part, pl. 39, fig. 1.—FINSCH, Journ. für Orn., 1883, 271 (Portage Bay, Alaska).
- Cyanura stelleri* var. *stelleri* RIDGWAY, Am. Journ. Sci., v, Jan., 1873, 41, footnote.
- Cyanocorax stelleri* BONAPARTE, Geog. and Comp. List, 1838, 27.—FINSCH, Abh. Nat. Verh. Brem., iii, 1872, 40 (Sitka).
- C[yanocorax] stelleri* GRAY, Gen. Birds, ii, 1849, 307.
- [*Cyanura stelleri*] var. *stelleri* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 272, part.
- [*Cyanurus stelleri* var. *macrolophus*] a. *stelleri* COUES, Birds N. W., 1874, 214, part (synonymy).
- Cyanocitta stelleri* STRICKLAND, Ann. Nat. Hist., xv, 1845, 261.—NEWBERRY, Rep. Pacific R. R. Surv., x, pt. iv, 1857, 85, part (Puget Sound).—SHARPE, Cat. Birds Brit. Mus., iii, 1877, 108, part (Sitka; San Juan de Fuca; Saturna I., British Columbia^a).—COUES, Bull. Nutt. Orn. Club, v, Apr., 1880, 98; Check List, 2d ed., 1882, no. 350, part.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 290, part.—BEAN, Proc. U. S. Nat. Mus., v, 1882, 161 (Sitka, Baranoff I., and Port Althorp, Alaska).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 478, part.—NELSON, Nat. Hist. Coll. Alaska, 1887, 163 (Sitka; Kuskokwim R. ?).—BENDIRE, Life Hist. N. Am. Birds, ii, 1895, 362, part.—NEHRING, Our Native Birds, etc., ii, 1896, 321, part.—GRINNELL (J.), Auk, xv, 1898, 128 (Sitka).—OSGOOD, N. Am. Fauna, no. 21, 1901, 77 (Graham Harbor, Cook Inlet).—RATHBUN (S. F.), Auk, xix, 1902, 136 (Seattle, Washington, resident).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 272, part.
- C[yanocitta] stelleri* CABANIS, Mus. Hein., i, 1851, 221 ("Kamtschatka").—COUES, Key N. Am. Birds, 2d ed., 1884, 421, part.—RIDGWAY, Man. N. Am. Birds, 1887, 353, part.
- Cyanocitta stelleri stelleri* FISHER (W. K.), Condor, iv, Mar., 1902, 42, 43 (description; crit.; geog. range).
- [*Cyanogarrulus*] *stelleri* BONAPARTE, Consp. Av., i, 1850, 377.
- [*Lophocorax*] *stelleri* KAUP, Journ. für Orn., ii, Nov., 1854, p. lv.
- (?) *Garrulus melanogaster* VIEILLLOT, Enc. Méth., ii, 1823, 891 (no locality given).
- (?) *P[ica] cyanochlora* WAGLER, Syst. Av., 1827, Pica, sp. 9 ("Nova Caledonia").
- Cyanocitta stelleri littoralis* MAYNARD, Ornithologist and Oologist, Apr., 1889, 95 (Vancouver I., British Columbia).
- Cyanocitta stelleri littoralis* CHAPMAN, Auk, vii, 1890, 91 (crit.).
- Cyanocitta stelleri borealis* CHAPMAN, Bull. Am. Mus. N. H., xvi, Aug. 8, 1902, 240 (Homer, Cook Inlet, Alaska; coll. Am. Mus. Nat. Hist.).

^a Dr. Sharpe has inadvertently transposed the respective ranges of the present species and *C. cristata*. Of *C. stelleri* he says: "*Hab.* Eastern North America, west to the Missouri, northeastern Texas, north to the Red River and Moose Factory (Ridgway)," which is the range assigned to *C. cristata* by the authors of the History of North American Birds (ii, p. 273). The range of *C. cristata* is given by Dr. Sharpe as "North America," whereas it is strictly confined to the Atlantic watershed of the continent.

CYANOCITTA STELLERI CARLOTTÆ Osgood.

OSGOOD'S JAY.

Similar to *C. s. stelleri*, but larger and decidedly darker, the blue of a more violet hue (dull cyanine or approaching hyacinth blue on secondaries and rectrices, the rump, upper tail-coverts and posterior under parts dull antwerp blue), the back and foreneck slightly sooty slate-black (decidedly less brown than in *C. s. stelleri*).

Adult male.—Length (skins), 310–322 (317.2) wing, 155.5–161 (156.2); exposed culmen, 29–32 (30.4); tarsus, 46.5–49.5 (48); middle toe, 26–28 (27.1).^a

Adult female.—Length (skin), 324; wing, 162; tail, 152.5; exposed culmen, 30.5; tarsus, 48; middle toe, 28.^b

Queen Charlotte Islands, British Columbia; also southern portion (at least) of Prince of Wales Island (Howkan).

Cyanocitta stelleri carlottæ Osgood, North Am. Fauna, no. 21, Sept., 1901, 46 (Cumshewa Inlet, Moresby I., Queen Charlotte group, British Columbia; coll. U. S. Nat. Mus.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xix, 1902, 321 (Check List no., 478d).—FISHER (W. K.), Condor, iv, 1902, 41, 42, 43 (crit.; geog. range).

CYANOCITTA STELLERI CARBONACEA Grinnell.

GRINNELL'S JAY.

Similar to *C. s. stelleri*, but paler throughout, and averaging slightly smaller; color of head very nearly as in *C. s. stelleri*, but averaging browner or more sooty, the forehead always conspicuously streaked with blue, and throat more extensively or uniformly pale grayish; back and foreneck much paler, slaty brown or brownish slate, instead of deep sooty; blue of rump, upper tail-coverts, and under parts of body light dull cerulean or verditer blue, advancing more over chest, where more abruptly defined against the sooty or brownish slate color of foreneck.

Adult male.—Length (skins), 275–317 (280.8); wing, 140.5–158 (150.5); tail, 134–146 (140); exposed culmen, 27–31.5 (29.1); tarsus, 42–46 (44.5); middle toe, 22.5–25 (23.8).^c

Adult female.—Length (skins), 254–290 (276); wing, 136–147 (143); tail, 125–138 (131); exposed culmen, 25–29.5 (27.7); tarsus, 39–45 (42.7); middle toe, 22–25 (23.7).^d

Coast district of California and Oregon, from Monterey County, California, to the Columbia River.^e

^a Four specimens, from Skidegate and Cumshewa Inlet, Queen Charlotte Islands.

^b One specimen, from Howkan, Prince of Wales Island.

^c Nine specimens.

^d Ten specimens.

^e Intergrading with *C. s. frontalis* in the district between Monterey County and the San Bernardino Mountains, and from the eastern slope of the northern Coast Range to Trinity Mountains and Mount Shasta; intergrading with *C. s. stelleri* in the district between the lower Columbia River and Puget Sound.

- Corvus stelleri* (not of Gmelin) NUTTALL, Man. Orn. U. S. and Can., i, 1832, 229 (Columbia R.).—AUDUBON, Orn. Biog., iv, 1838, 453, pl. 362, fig. 2 (Columbia R.).
- Garrulus stelleri* (not of Vieillot) AUDUBON, Synopsis, 1839, 153.
- [*Cyanurus*] *stelleri* GRAY, Hand-list, ii, 1870, 4, no. 6088 (California).—COUES, Key N. Am. Birds, 1872, 165, part.
- Cyanura stelleri* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 581, part (Columbia R.; Fort Dallas, Cascade Mts., and Willamette Valley, Oregon; Petaluma, San Francisco Co., Redwoods, and Monterey, California).—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 214, part (Oregon).—COOPER, Orn. Cal., 1870, 298, part; Proc. Cal. Ac. Sci., 1875, 10 (Monterey, California).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 277, part.
- [*Cyanura stelleri*] var. *stelleri* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 272, part.
- [*Cyanurus stelleri* var. *macrolophus*] a. *stelleri* COUES, Birds N. W., 1874, 214, part (synonymy).
- Cyanocitta stelleri* (not of Strickland) NEWBERRY, Rep. Pacific R. R. Surv., x, pt. iv, 1857, 85, part (northern California; Oregon).—(?) SHARPE, Cat. Birds Brit. Mus., iii, 1877, 108, part (California).—COUES, Check List, 2d ed., 1882, no. 350, part.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 290, part.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 478, part.—TOWNSEND, Proc. U. S. Nat. Mus., x, 1887, 211 (Humboldt Co., California).—FISHER (A. K.), North Am. Fauna, no. 7, 1893, 68 (Monterey and San Francisco, California).—BENDIRE, Life Hist. N. Am. Birds, ii, 1895, 362, part, pl. 5, fig. 9 (eggs).—NEHELING, Our Native Birds, etc., ii, 1896, 321, part.—ANTHONY, Auk, iii, 1886, 166 (Washington Co., Oregon).—MERRILL, Auk, v, 1888, 261 (Fort Klamath, Oregon).—BREWSTER, Auk, v, 1888, 261 (Fort Klamath; crit.).—BELDING, Land Birds Pacific Distr., 1890, 109 (n. coast California).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 272, part.
- Cyanocitta stelleri* COUES, Key N. Am. Birds, 2d ed., 1884, 421, part.—RIDGWAY, Man. N. Am. Birds, 1887, 353, part.
- Cyanocitta stelleri frontalis* (not *Cyanura stelleri* var. *frontalis* Ridgway) MEARNS, Bull. Nutt. Orn. Club, iv, Oct., 1879, 194 (Ft. Klamath, Oregon).—BENDIRE, Life Hist. N. Am. Birds, ii, 1895, 365, part, pl. 5, fig. 10 (Santa Cruz, California).
- Cyanocitta s[telleri] frontalis* MAILLIARD, Condor, ii, 1900, 64 (Marin Co., California).
- Cyanocitta stelleri carbonacea* GRINNELL (J.), Condor, ii, Nov., 1900, 127 (Stevens Creek Canyon, Santa Clara Co., California; coll. J. Grinnell).—BARLOW, Condor, ii, 1900, 132 (Los Gatos, Santa Clara Co., California).—ALLEN, Auk, xviii, 1901, 174 (republishing of orig. description).—FISHER (W. K.), Condor, iv, 1902, 41, 44 (crit.; geog. range).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 273, footnote.

CYANOCITTA STELLERI FRONTALIS Ridgway.

SIERRA NEVADA JAY.

Similar to *C. s. carbonacea*, but much lighter colored, and average size decidedly less; head, neck, and upper chest deep hair brown (varying to rather dark grayish brown), the pileum (including crest) darker brown and often extensively tinged with blue; forehead usually more extensively streaked with blue; back and scapulars hair brown, brocoli brown, or drab; rump, upper tail-coverts, and under parts of body

light cerulean or turquoise blue, the secondaries and tail, however, nearly as deep blue as in *C. s. stelleri*. Young much paler and browner than that of *C. s. stelleri*.

Adult male.—Length (skins), 284.5–297 (291); wing, 144–149.5 (146.5); tail, 133.5–139.5 (136); exposed culmen, 27.5–30.5 (29.5); depth of bill at nostrils, 9.5–10 (9.9); tarsus, 41–44.5 (42); middle toe, 23–25 (24).^a

Adult female.—Length (skins), 256–292 (284); wing, 136–145 (140.5); exposed culmen, 25.5–27.5 (26); depth of bill at nostrils, 8.5–9 (8.9); tarsus, 38–41 (40.5); middle toe, 23–23.5 (23.1).^b

Sierra Nevada and San Bernardino ranges and mountains of northern Lower California (San Pedro Martir Mountains). (Intergrading with *C. s. carbonata* in southern portion of southern Coast Range and on eastern slope of northern Coast Range.)

Cyanocorax stelleri (not *Corvus stelleri* Gmelin) GAMBEL, Proc. Ac. Nat. Sci. Phila., 1847, 201, part (California).

Cyanura stelleri BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 581, part (Fort Tejon, California); Cat. N. Am. Birds, 1859, no. 435, part.—HEERMANN, Rep. Pacific R. R. Surv., x, pt. vi, 1859, 55 (Warner's Ranch, etc., California).—XANTUS, Proc. Ac. Nat. Sci. Phila., 1859, 192 (Fort Tejon, California).—FEILNER, Ann. Rep. Smithson. Inst. for 1864 (1865), 427 (Fort Crook, n. e. California; habits).—COOPER, Orn. Cal., 1870, 165, part.

Cyanurus stelleri NELSON, Proc. Bost. Soc. N. H., xvii, 1875, 360 (Nevada, California).

Cyanocitta stelleri GAMBEL, Journ. Ac. Nat. Sci. Phila., 2d ser., i, 1847, 45, part (California).—NEWBERRY, Rep. Pacific R. R. Surv., vi, pt. iv, 1857, 85, part (California).—SHARPE, Cat. Birds Brit. Mus., iii, 1877, 108, part (California).

(?) *Garrulus coronatus* (not of Swainson) SCHLEGEL, Mus. Pays-Bas, Coraces, 1867, 63, part (California).

Cyanura stelleri var. *frontalis* RIDGWAY, Am. Journ. Sci., 3d ser., v, Jan., 1873, 41, 43 (Sierra Nevada, near Carson City; coll. U. S. Nat. Mus.); Bull. Essex Inst., vii, 1875, 37 (Carson City).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 279, pl. 39, fig. 2.—BENDIRE, Proc. Bost. Soc. N. H., 1877, 126 (California; descr. eggs).

Cyanura stelleri . . . var. *frontalis* COUES, Check List, 1873, no. 235b.—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1876, 252 (Tejon Mts., Walkers Basin, Mount Whitney, and near Kernville, s. California).

Cyanura stelleri frontalis RIDGWAY, Bull. Essex Inst., vi, Oct., 1874, 173 (Sierra Nevada).

[*Cyanura*] *stelleri frontalis* HENSHAW, Orn. Rep. Wheeler's Surv., 1879, 307 (e. slope Sierra Nevada; crit.; descr. young).

[*Cyanurus stelleri* var. *macrolophus*] b. *frontalis* COUES, Birds N. W., 1874, 215 (synonymy).

Cyanura stelleri . . . β. *frontalis* RIDGWAY, Orn. 40th Parallel, 1877, 523 (Sierra Nevada; habits, etc.).

Cyanura var. *frontalis* HENSHAW, Ann. Rep. Wheeler's Surv., 1877, 1305 (e. slope Sierra Nevada).

Cyanura frontalis RIDGWAY, Orn. 40th Parallel, 1877, 319, 333, 336, 347, 368.

[*Cyanocitta*] *stelleri* var. *frontalis* BOUCARD, Catalogus Avium, 1876, 279, no. 873^c (California).

^a Four specimens.

^b Four specimens.

- Cyanocitta stelleri frontalis* RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 184, 218; Nom. N. Am. Birds, 1881, no. 290a.—COUES, Bull. Nutt. Orn. Club, v, Apr., 1880, 98; Check List, 2d ed., 1882, no. 353.—GOSS, Auk, ii, 1885, 217 (descr. nest and eggs).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 478a.—EVERMANN, Auk, iii, 1886, 181 (Ventura Co., California).—TOWNSEND, Proc. U. S. Nat. Mus., x, 1887, 211 (Mount Shasta, California).—MORCOM, Bull. Ridgw. Orn. Club, no. 2, 1887, 46 (Bear Valley, San Bernardino Co., California).—EMERSON, Bull. 7, Cal. Ac. Sci., 1887, 422 (Volcano Mts., San Diego Co., California, resident).—FISHER, North Am. Fauna, no. 7, 1893, 69 (Owens Lake, Walkers Basin, etc., California).—BENDIRE, Life Hist. N. Am. Birds, ii, 1895, 365, pl. 5, fig. 10 (egg).—GRINNELL (J.), Pasadena Ac. Sci., Pub. ii, 1898, 31 (Los Angeles Co., California, breeding).—FISHER (W. K.), Condor, ii, 1900, 137 (Mount St. Helena, Napa Co., California); iv, 1902, 41, 42 (crit.; geog. range).
- C[yanocitta] s[telleri] frontalis* COUES, Key N. Am. Birds, 2d ed., 1884, 422.—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 273.
- C[yanocitta] stelleri frontalis* RIDGWAY, Man. N. Am. Birds, 1887, 354.
- Cyanocitta frontalis* RIDGWAY, Proc. U. S. Nat. Mus., i, Mar. 20, 1879, 391 (Calaveras Co., California).
- Cyanocitta stelleri*, *β. frontalis* RIDGWAY, Proc. U. S. Nat. Mus., i, Mar. 21, 1879, 422 (breeding in pine belt of Calaveras Co. from 3,000 ft. up; a few winter in Sacramento Valley).

CYANOCITTA STELLERI ANNECTENS Baird.

BLACK-HEADED JAY.

Similar to *C. s. stelleri*, but with a distinct (though sometimes small) elongated spot of grayish white immediately above the eye; streaks on forehead (if present) paler blue or bluish white; chin and upper throat more conspicuously streaked (the streaks grayish white rather than gray); back and scapulars rather paler and grayer, and the blue of rump, upper tail-coverts, and under parts of body paler and greener (nearly verditer or china blue).

Adult male.—Length (skins), 292–305 (297); wing, 147–164.5 (154); tail, 141–159.5 (148); exposed culmen, 25.5–28 (26.5); depth of bill at nostrils, 8.5–10 (9.5); tarsus, 42–43.2 (42.9); middle toe, 23–25.5 (24).^a

Adult female.—Length (skins), 294.5–305 (299); wing, 147.5–150 (148.5); tail, 139–145 (143); exposed culmen, 25–27.5 (26); depth of bill at nostrils, 9–10 (9.5); tarsus, 41–43.5 (42.5); middle toe, 23–25 (24).^b

Eastern British Columbia and more northern Rocky Mountains in general, south to eastern Oregon (Camp Harney), eastern Washington (Walla Walla, etc.), Idaho, Utah (Provo, November 30), Wyoming (Shoshone Lake, September 7); accidentally to western Nebraska (Sioux Co., 1 spec., April, 1891).

Garrulus stelleri (not *Corvus stelleri* Gmelin) SWAINSON and RICHARDSON, Fauna Bor.-Am., ii, 1831, 294, part, pl. 54 (headwaters Columbia R.).

Cyanura stelleri BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 581, part (St. Marys Mission, Idaho); Cat. N. Am. Birds, 1859, no. 435, part.—BENDIRE, Proc. Bost. Soc. N. H., 1877, 126 (Camp Harney, e. Oregon; descr. nest and eggs).

^a Five specimens.^b Four specimens.

- Cyanura macrolopha* (not of Baird) MERRIAM, Rep. U. S. Geol. Surv. Terr., 1872, 688 (Teton Canyon, Idaho; Shoshone Lake, Wyoming).
- Cyanurus stelleri* . . . var. *macrolopha* YARROW and HENSHAW, Rep. Orn. Spec. Wheeler's Surv. 1872 (1874), 20 (Provo, Utah, Nov. 30).—HENSHAW, Zool. Exp. W. 100th Merid., 1875, 335, part (spec. from Provo Canyon, Utah, Nov. 30).
- [*Cyanura stelleri*] var. *annectens* BAIRD, in Baird, Brewer and Ridgway's Hist. N. Am. Birds, ii, 1874, 281, in text (Hell Gate, Montana; coll. U. S. Nat. Mus.).
- Cyanocitta stelleri annectens* RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1890, 184, 218; Nom. Am. Birds, 1881, no. 2906; Man. N. Am. Birds, 1887, 593.—BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 229 (Fort Walla Walla, Washington; crit.).—COUES, Check List, 2d ed., 1882, no. 351.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Suppl. to Check List, 1889, 11 (no. 478c); Check List, 2d ed., 1895, no. 478c.—CHAPMAN, Bull. Am. Mus. N. H., iii, 1890 141, (high mts. int. British Columbia; crit.).—FANNIN, Check List Birds Brit. Columbia, 1891, 32 (e. side Cascades; Rocky Mt. district).—MERRIAM, North Am. Fauna, no. 5, 1891, 99 (Salmon R. Mts., Teton Basin, etc., Idaho).—RHOADS, Proc. Ac. Nat. Sci. Phila., 1893, 45, 63 (int. British Columbia).—RICHMOND and KNOWLTON, Auk, xi, 1894, 304 (Gallatin Basin, Montana, 9,000 ft.).—BENDIRE, Life Hist. N. Am. Birds, ii, 1895, 369.—DAWSON, Auk, xiv, 1897, 177 (Okanogan Co., e. Washington).—MERRILL, Auk, xiv, 1897, 356 (Fort Sherman, n. w. Idaho).—BRUNER, Rep. Nebr. Hort. Soc. for 1896 (1898), 118 (Sioux Co., w. Nebraska, 1 spec., Apr., 1891).—BROOKS, Auk, xvii, 1900, 106 (British Columbia, 40 miles from coast).—FISHER (W. K.), Condor, iv, 1902, 41, 44 (crit.; geog. range).
- [*Cyanocitta*] s[*stelleri*] *annectens* COUES, Key N. Am. Birds, 2d ed., 1884, 422.—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 273.
- [*Cyanocitta*] *stelleri annectens* RIDGWAY, Man. N. Am. Birds, 1887, 354.

CYANOCITTA STELLERI DIADEMATA (Bonaparte).

• LONG-CRESTED JAY.

Similar to *C. s. annectens*, but lighter colored, with white superciliary patch much larger (or else purer white), forehead more conspicuously streaked with bluish white, greater wing-coverts distinctly barred with black, and the deep black crest very strongly contrasted with the clear brownish gray (nearly mouse gray) of the back and scapulars; rump, upper tail-coverts, and under parts of body light glaucous-blue.

Adult male.—Length (skins), 287–305 (296); wing, 148–159.5 (153.5); tail, 132.5–153 (142.5); exposed culmen, 27.5–29.5 (28.5); depth of bill at nostrils, 8–10 (9.5); tarsus, 41.5–45 (43.5); middle toe, 22.5–25.5 (24.5).^a

Adult female.—Length (skins), 279.5–297 (295.5); wing, 136.5–153 (145); tail, 122–141.5 (131); exposed culmen, 25.5–27.5 (26.5); depth of bill at nostrils, 8–10 (9); tarsus, 40.5–43.5 (42); middle toe, 21.5–24 (23).^b

Rocky Mountain district of United States and Sierra Madre of north-western Mexico; north to northeastern Utah (Wasatch and Uintah mountains) and southern Wyoming; west to Wasatch range and higher mountains of Arizona; east to Colorado and New Mexico; south through Mexican states of eastern Sonora and Sinaloa and western Chihuahua

^a Eight specimens.

^b Seven specimens.

and Durango to northern Jalisco (Bolaños), Territory of Tepic (Santa Teresa), and Zacatecas (Plateado, Valparaiso Mountains, etc.).^a

Cyanocitta stelleri (not *Corvus stelleri* Gmelin) GAMBEL, Journ. Ac. Nat. Sci. Phila., 2d ser., i, 1847, 45, part (Rocky Mts.).—SCOTT, Auk, iv, 1887, 20 (Santa Catalina and Pinal mountains, Arizona).

Cyanocorax stelleri (not of Bonaparte) GAMBEL, Proc. Ac. Nat. Sci. Phila., 1847, 201, part (Rocky Mts.).—McCALL, Proc. Ac. Nat. Sci. Phila., 1851, 216 (New Mexico).—WOODHOUSE, in Rep. Sitgreaves' Expl. Zúñi and Col. R., 1853, 77 (New Mexico).

Cyanura stelleri COUES, Ibis, 1865, 159, in text (Raton Mts., New Mexico).

Cyanurus stelleri SCOTT, Bull. Nutt. Orn. Club, iv, 1879, 94 (Twin Lakes, Colorado).

C[yanogarrulus] diadematus BONAPARTE, Consp. Av., i, May 6, 1850, 377 (Zacatecas, w. centr. Mexico; coll. Darmstadt Mus.).

[*Lophocorax*] *diadematus* KAUP, Journ. für Orn., ii, Nov., 1854, p. lv.

Cyanocitta diademata SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1887, 490, part (Zacatecas; not description, which = *C. s. azteca* Ridgway).

^a Four specimens from Durango (Cerro Prieto) and the above-mentioned localities in Zacatecas and northern Jalisco are decidedly smaller than more northern examples, and are appreciably though not distinctly different in color. Instead of showing an approach in the latter respect to *C. s. azteca* or *C. s. coronata*, as might reasonably be expected from geographical considerations, exactly the reverse is the case, the distinctive features of the *macrolopha* type reaching their maximum development in this series. The differences from typical examples of *C. s. macrolopha*, while appreciable, are, however, of such a character that I would not, without more ample material, favor the subspecific separation of these southern birds.

The average maximum and minimum measurements of this series and of a series from the United States are given herewith:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at nos- trils.	Tarsus.	Middle toe.
AVERAGE, MALES.						
Eight specimens from United States.....	153.5	142.5	28.5	9.5	48.5	24.5
Two specimens from Durango and Zacatecas.....	147.5	135	25.5	9.5	43	22
AVERAGE, FEMALES.						
Seven specimens from United States.....	145	131	26.5	9	42	23
Two specimens from Zacatecas and northern Jalisco	136	127.5	23.5	8	38	20.5
MAXIMUM, MALES.						
Eight specimens from United States	159.5	158	29	10	45	25.5
Two specimens from Durango and Zacatecas	151	139.5	26	10	43	22.5
MAXIMUM, FEMALES.						
Seven specimens from United States.....	153	141.5	27.5	10	43.5	24
Two specimens from Zacatecas and northern Jalisco	139.5	131.5	24	8	39	20.5
MINIMUM, MALES.						
Eight specimens from United States	148	131	27.5	8	41.5	22.5
Two specimens from Durango and Zacatecas	143	130	25	9	42.5	21
MINIMUM, FEMALES.						
Seven specimens from United States.....	136.5	122	25.5	8	40.5	21.5
Two specimens from Durango and Zacatecas	132	124	23	8	36.5	20.5

- C[yanocitta] s[telleri] diademata* RIDGWAY, Auk, xvi, July, 1899, 256, in text.—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 273.
- Cyanocitta stelleri diademata* AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xviii, 1901, 302.—OBERHOLSER, Auk, xix, 1902, 300 (Davis and Guadalupe mountains, w. Texas).
- Cyanocorax coronatus* (not *Garrulus coronatus* Swainson) BAIRD, in Stansbury's Gt. Salt Lake, 1852, 332 (Texas).
- Cyanocitta macrolopha* BAIRD, Proc. Ac. Nat. Sci. Phila., vii, June, 1854, 118 (100 miles w. of Albuquerque, New Mexico; coll. U. S. Nat. Mus.).—KENNERLY, Rep. Pacific R. R. Surv., iv, pt. vi, 1856, 10, 11 (100 miles w. Albuquerque, New Mexico, etc.).—SCLATER, Cat. Am. Birds, 1862, 143 (n. Mexico).—SHARPE, Cat. Birds Brit. Mus., iii, 1877, 110 (Colorado).—RIDGWAY, Field and Forest, 1877, 208 (Colorado).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1887, 489 (Ciudad, Durango, Mexico).
- [*Cyanocitta*] *macrolopha* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 39 (n. Mexico).
- Cyanura macrolophus* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 582, part (Laramie Peak, Wyoming; Fort Massachusetts, Fort Thorn, and 100 miles w. of Albuquerque, New Mexico; Camp 105), 925 (Cant. Burgwyn, New Mexico); Cat. N. Am. Birds, 1859, no. 436.—KENNERLY, Rep. Pacific R. R. Surv., x, pt. vi, 1859, 32 (100 miles w. Albuquerque, etc., New Mexico).—ELLIOT, New and Unfig. N. Am. Birds, i, 1869, pl. 17.—COOPER, Orn. Cal., 1870, 300 (Arizona, etc.).—AIKEN, Proc. Bost. Soc. N. H., xv, 1872, 205 (e. Colorado).
- Cyanura macrolopha* COUES, Proc. Ac. Nat. Sci. Phila., 1866, 92 (Fort Whipple, Arizona, resident; habits; crit.); Am. Nat., v, 1871, 770 (biography).—STEVENSON, Prelim. Rep. U. S. Geol. Surv. for 1870 (1871), 465 (Green R., Wyoming).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, pl. 39, fig. 3.
- [*Cyanurus*] *macrolophus* GRAY, Hand-list, ii, 1870, 4, no. 6087.
- Cyanura stelleri* var. *macrolopha* ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 163, 169, 178 (Colorado; Wyoming; Utah).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 281.
- Cyanura stelleri* . . . var. *macrolopha* RIDGWAY, Bull. Essex Inst., v, Nov., 1873, 184 (Colorado).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 84 (Georgetown, Fort Garland, etc., Colorado), 123 (Apache, Gila R., etc., Arizona; habits).
- [*Cyanurus stellerii*.] Var. *macrolophus* COUES, Key N. Am. Birds, 1872, 165.
- Cyanurus stelleri* . . . var. *macrolopha* COUES, Check List, 1873, no. 235a.—HENSHAW, Zool. Exp. W. 100th Merid., 1875, 335 (localities in Utah, Colorado, and Arizona; habits).
- Cyanurus stelleri* var. *macrolophus* ALLEN, Bull. Mus. Comp. Zool., iii, July, 1872, 150 (e. Colorado).—COUES, Birds N. W., 1874, 214, excl. syn. part.
- Cyanura stelleri* . . . var. *macrolophus* HENSHAW, Annot. List Birds Utah, 1874, 7.
- [*Cyanurus stelleri* var. *macrolophus*] c. *macrolophus* COUES, Birds N. W., 1874, 215 (synonymy).
- C[yanura] stelleri macrolopha* RIDGWAY, Bull. Essex Inst., vi, Oct., 1874, 174 (Rocky Mts.).
- Cyanura stelleri macrolopha* RIDGWAY, Bull. Essex Inst., vii, Jan., 1875, 33 (Wasatch Mts., Utah).
- Cyanura coronata* var. *macrolopha* RIDGWAY, Am. Journ. Sci., 3d ser., v, Jan., 1873, 41.
- Cyanocitta stelleri macrolopha* COUES, Bull. Nutt. Orn. Club, v, Apr., 1880, 98; Check List, 2d ed., 1882, no. 352.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 290c.—DREW, Bull. Nutt. Orn. Club, vi, 1881, 139 (San Juan Co., Colorado, breeding).—BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 201 (Chirica-

hua Mts., Arizona; habits).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 4786.—MEARNS, Auk, vii, 1890, 256 (Mogollon and San Francisco mountains, Arizona).—MERRIAM, North Am. Fauna, no. 3, 1890, 39 (Grand Canyon of the Colorado), 94 (San Francisco Mts.).—JOUY, Proc. U. S. Nat. Mus., xvi, 1893, 781 (mountains s. of Nogales, Sonora).—ALLEN, Bull. Am. Mus. N. H., v, 1893, 37 (El Pinita, n. e. Sonora).—BENDIRE, Life Hist. N. Am. Birds, ii, 1895, 367, pl. 5, figs. 11, 12 (eggs).

C[yanocitta] s[telleri] macrolopha COUES, Key N. Am. Birds, 2d ed., 1884, 422.

C[yanocitta] stelleri macrolopha RIDGWAY, Man. N. Am. Birds, 1887, 354.

CYANOCITTA STELLERI AZTECA Ridgway.

AZTEC JAY.

Similar to *C. s. diademata*, but neck, back, and scapulars dull blue instead of brownish gray, crest more or less tinged or washed with blue, and the general blue color much deeper (rump, upper tail-coverts, and under parts of body azure blue instead of pale blue or light turquoise blue, the wing-coverts, secondaries, and tail dull paris blue instead of dull cobalt); streaks on forehead more tinged with blue.

Adult male.—Length (skins), 279.5–294.5 (284.5); wing, 143.5–152 (149); tail, 139.5–149.5 (143.5); exposed culmen, 25–28 (26); depth of bill at nostrils, 9.5–10.2 (9.9); tarsus, 40.5–44.5 (42.5); middle toe, 23–24 (23.5).^a

Adult female.—Length (skins), 279.5–292 (281); wing, 137.5–148 (142); tail, 134–139 (137); exposed culmen, 23.5–25.5 (25); depth of bill at nostrils, 8.9–9.6 (9.4); tarsus, 41–45 (42.5); middle toe, 22.5–23.5 (23).^b

South-central Mexico, in the States of Vera Cruz (Orizaba, Mirador), Puebla (Hacienda de San Pedro and Tochimilco), Morelos (Tetela del Volcan), Mexico (Popocatepetl, Iztaccihuatl, Ajusco, Valley of Mexico, etc.), and Michoacan (Patzcuaro).^c

^a Eight specimens.

^b Five specimens.

^c Specimens from Patzcuaro, Michoacan, are somewhat different from examples representing the other localities mentioned above, being slightly deeper in color, with the crest more strongly washed with blue. They also average slightly smaller. They show an approach toward *C. s. coronata*, which is the form of the adjacent States of Colima and Guerrero, but are decidedly nearer the present form. Specimens average in measurements as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at nos- trils.	Tarsus.	Middle toe.
ADULT MALES.						
Four specimens from State of Mexico (Popocatepetl)	151	144.5	27	10	42.5	23.5
Four specimens from State of Michoacan (Patzcuaro)	147	143	25.5	10	43	23
ADULT FEMALES.						
Four specimens from State of Mexico	143	136.5	24.5	9.5	42	23
One specimen from State of Michoacan	139.5	139	25.5	9.5	43	23.5

- [*Cyanogarrulus*] *coronatus* (not *Garrulus coronatus* Swainson) BONAPARTE, *Consp. Av.*, i, May, 1850, 377 (at least part).
C[yanocitta] *coronata* CABANIS, *Mus. Hein.*, i, Oct., 1851, 222 (Mexico).
Cyanocitta coronata SHARPE, *Cat. Birds Brit. Mus.*, iii, 1877, 111, excl. syn. (highlands of Mexico).
Cyanocitta diademata (not *Cyanogarrulus diadematus* Bonaparte) SCLATER, *Proc. Zool. Soc. Lond.*, 1860, 252 (Orizaba, Vera Cruz); 1864, 175 (Valley of Mexico); *Cat. Am. Birds*, 1862, 143 (Mexico).—SALVIN and GODMAN, *Biol. Centr.-Am., Aves*, i, 1887, 490 (Valley of Mexico; Hacienda de San Pedro, Puebla; Orizaba^a).
[Cyanocitta] *diademata* SCLATER and SALVIN, *Nom. Av. Neotr.*, 1873, 39.
[Cyanurus] *diadematus* GRAY, *Hand-list*, ii, 1870, 4, no. 6090.
Cyanura coronata var. *diademata* RIDGWAY, *Am. Journ. Sci.*, 3d ser., v, Jan., 1873, 40, 42.
[Cyanura stelleri] var. *diademata* BAIRD, BREWER, and RIDGWAY, *Hist. N. Am. Birds*, ii, 1874, 272.
Cyanura macrolophus (not of Baird, 1854) BAIRD, *Rep. Pacific R. R. Surv.*, ix, 1858, 582, part (City of Mexico).
[Cyanurus stelleri] var. *macrolophus*] d. *diadematus* COUES, *Birds N. W.*, 1874, 215 (synonymy).
Cyanocitta stelleri diademata FERRARI-PEREZ, *Proc. U. S. Nat. Mus.*, ix, 1886, 152 (Hacienda de San Pedro, Puebla).—STONE, *Proc. Ac. Nat. Sci. Phila.*, 1891, 445.
C[yanocitta] *stelleri diademata* RIDGWAY, *Man. N. Am. Birds*, 1887, 354.
Cyanocitta stelleri azteca RIDGWAY, *Auk*, xvi, July, 1899, 256 (mountains near Mirador, Vera Cruz, s. e. Mexico; coll. U. S. Nat. Mus.).

CYANOCITTA STELLERI CORONATA (Swainson).

BLUE-CRESTED JAY.

Similar to *C. s. azteca*, but much more extensively blue; the whole crest distinctly blue (dull cobalt or dull ultramarine), the neck, back, and scapulars similar, but (especially the dorsal region) slightly duller, the grayish white on chin and throat more distinct (usually forming a distinct patch), and lower eyelid usually with a distinct (often conspicuous) white spot.

Adult male.—Length (skins), 266.5–309.5 (286.5); wing, 134.6–148.5 (139); tail, 135.5–146 (139); exposed culmen, 24.5–27.5 (25.5); depth of bill at nostrils, 9–10 (9.5); tarsus, 41–45.5 (42.5); middle toe, 22–25 (23).^b

Adult female.—Length (skins), 254–297 (281.5); wing, 132.5–147.5 (140.5); tail, 127.5–137.5 (133); exposed culmen, 23–26.5 (25); depth of bill at nostrils, 8.5–10 (9.5); tarsus, 38–43 (41); middle toe, 20.5–24 (22.5).^c

Highlands (pine region) of Guatemala, southern Mexico, and part of Honduras; north, along eastern side of Mexican plateau through Vera Cruz (Mirador, Orizaba, Jalapa, Las Vigas, etc.), to Hidalgo

^a Not the locality Zacatecas, which is the type locality of true *C. s. diademata*.

^b Fourteen specimens.

^c Twelve specimens.

(Encarnacion, El Chico, etc.), along the southwestern side, through Oaxaca and Guerrero, to Colima (Sierra Madre).^a

Garrulus coronatus SWAINSON, Philos. Mag., new ser., i, 1827, 437 (table-land of Mexico; type lost; see Salvin and Godman, Biol.-Centr.-Am., Aves, i, 1887, 491).—JARDINE and SELBY, Illustr. Orn., ii, 1828 (17), pl. 64 (table-land of Mexico).—SCHLEGEL, Mus. Pays-Bas, Coraces, 1867, 63, part (Mexico).

P[ica] coronata WAGLER, Isis, 1829, 750 (Mexico).

Cyanurus coronatus SWAINSON, Fauna Bor.-Am., ii, 1831, 495 (Mexico).—SCLATER and SALVIN, Ibis, 1859, 22 (Los Choyos and Altos, Guatemala).

[*Cyanurus*] *coronatus* GRAY, Hand-list, ii, 1870, 4, no. 6086.

Cyanura coronata BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 583, footnote.—SCLATER, Proc. Zool. Soc. Lond., 1859, 381 (Juquilla, Oaxaca).—SUMICHRIST, Mem. Bost. Soc. N. H., i, 1869, 554 (alpine reg. Vera Cruz).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, pl. 39, fig. 4.

Cyanocorax coronatus BONAPARTE, Proc. Zool. Soc. Lond., 1837, 109 (Mexico), 115 (Guatemala); 1850, 115 (Mexico); Nuov. Ann. Sci. Nat. Bologna, ii, 1839, 343.

[*Cyanocorax*] *coronatus* GRAY, Gen. Birds, ii, 1845, 307.

[*Cyanogarrulus*] *coronatus* BONAPARTE, Consp. Av., i, 1850, 377 (Mexico).

Cyanocitta coronata STRICKLAND, Ann. Nat. Hist., 1845, 261.—SCLATER, Proc. Zool. Soc. Lond., 1858, 302 (La Parada, Oaxaca), 359 (pine region of Honduras, between Seguatepeque and Taulevi); Cat. Am. Birds, 1862, 142 (Mexico; Guatemala).—TAYLOR, Ibis, 1860, 112 (pine reg. Honduras).—LAWRENCE,

^a Specimens from Guatemala and Chiapas have, as a rule, the white spot on lower eyelid better developed (apparently it is never absent, as is frequently the case with Mexican examples), the grayish white throat-patch larger and almost unbroken, and the general coloration slightly more uniform blue. Specimens from Hidalgo, while having the crest equally blue, have the frontal streaks whiter, the back slightly grayer, and the general blue color lighter, thus showing an approach toward *C. s. azteca* and *C. s. diademata*, especially the former, from which they differ decidedly in their distinctly blue instead of black or blue-black crest and foreneck. In fact, unless these Hidalgo specimens are considered to represent an additional subspecies, they must be referred to *C. s. coronata*, since they are distinctly more similar to the typical form of the latter than to *C. s. azteca*. Separation of the Hidalgo bird would, however, necessitate separation of the birds from Chiapas and Guatemala also as another form.

Average measurements of specimens from different localities are as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at nos- trils.	Tarsus.	Middle toe.
ADULT MALES.						
Four specimens from Hidalgo and Vera Cruz.....	147.5	141.5	25.5	9.5	42.5	22
Three specimens from Guerrero.....	144	138.5	26	10	43.5	23.5
Two specimens from Chiapas.....	146	137	26.5	9.5	42	23.5
Four specimens from Guatemala.....	146	139	25.5	9.5	42.5	23
ADULT FEMALES.						
Four specimens from Vera Cruz.....	141	134.5	25.5	9.5	41	22.5
Two specimens from Guerrero.....	137	131	25.5	10	40.5	21.5
Three specimens from Chiapas.....	142	133	24.5	9	41	23
Three specimens from Guatemala.....	140.5	131.5	24.5	9	41.5	22.5

- Bull. U. S. Nat. Mus., no. 4, 1876, 24 (Cienguilla, alpine reg. Oaxaca).—(?) DUGES, *La Nature*, i, 1869, 139 ("Tierras calientes").—SALVIN and GODMAN, *Biol. Centr.-Am., Aves*, i, 1887, 491 (table-land; alpine reg. Vera Cruz; La Parada, Cienguilla, and Juquilla, Oaxaca; Volcan de Fuego, Baranco de los Chocoyos, Totonicapam, San Raymundo, Santa Barbara, and Chilasco, Guatemala; between Seguatepeque and Taulevi, Honduras).
 [Cyanocitta] *coronata* SCLATER and SALVIN, *Nom. Av. Neotr.*, 1873, 39 (Mexico; Guatemala).
Cyanura coronata var. *coronata* RIDGWAY, *Am. Journ. Sci.*, 3d ser., v, Jan., 1873, 42.
 [Cyanura *stelleri*] var. *coronata* BAIRD, BREWER, and RIDGWAY, *Hist. N. Am. Birds*, ii, 1874, 272 (Jalapa, Vera Cruz; Belize, British Honduras).
 [Cyanurus *stelleri* var. *macrolophus*] e. *coronatus* COUES, *Birds N. W.*, 1874, 215 (synonymy).
 [Cyanocitta] *stelleri coronata* RIDGWAY, *Man. N. Am. Birds*, 1887, 355.
Cyanocitta stelleri coronata STONE, *Proc. Ac. Nat. Sci. Phila.*, 1891, 445 (Jalapa).
 [Cyanocitta] *galeata*^a CABANIS, *Mus. Hein.*, i, Oct., 1851, 222 (Bogota, Colombia?; coll. Heine Mus.).
Cyanocitta diadenata (not *Cyanogarrulus diadematus* Bonaparte) SHARPE, *Cat. Birds Brit. Mus.*, iii, 1877, 111, excl. synonymy (Sierra de Oaxaca and La Parada, Oaxaca).

Genus PERISOREUS Bonaparte.

- Perisoreus* BONAPARTE, *Saggio di una dist. met.*, 1831, 43. (Type, *Lanius infaustus* LINNÆUS.)
Dysornithia^b SWAINSON, *Fauna Bor.-Am.*, ii, 1831, 495. (Type, *Corvus canadensis* LINNÆUS.)

Plumage very fluffy, especially on the back; head without distinct crest, but with feathers of entire pileum, very long; bill very short (less than half length of head), depressed, the culmen straight to near tip, where slightly decurved; gonys decidedly convex; nostrils completely hidden by the antrorse nasal tufts; tarsus decidedly more than one and one-half times as long as exposed culmen, rather slender; middle toe about half as long as tarsus, decidedly shorter than exposed culmen; tail nearly (sometimes quite) as long as wing, graduated for considerably more than length of exposed culmen.

Coloration.—No bright colors, but uniform gray or dusky hues prevailing;^c adults with forehead, nasal tufts, sides of head, throat, and chest white or whitish; occiput (sometimes nearly whole pileum) grayish, dusky, or blackish; upper parts uniform dusky grayish or

^aClearly this form, and the supposed locality erroneous. A translation of the original description is as follows:

"*C. galeata* has the blue coloring still more predominating [than in *C. coronata* Cabanis=*C. s. azteca*, the true *C. s. coronata* being evidently unknown, as such, to Cabanis]; the topknot is handsome blue, but its border is blackish; on the other hand, the auricular region and the other parts of the head are blue; the back is also more brightly colored and as blue as the lower parts.

"The native place of the species appears to be doubtful."

^b"*Avis infausta*. Th. *δύς* et *ορνίς*."

^cIn the single Palearctic species the plumage partly rusty

brownish, the rectrices indistinctly (though sometimes broadly) tipped with whitish; lower parts plain grayish or whitish; young entirely plain dusky, varying from a slaty to a brownish hue, the crown and malar region sometimes whitish.

Nidification.—Nest in coniferous trees, open above, bulky, composed of dry twigs, strips of bark, plant fibers, etc., lined with softer materials, including feathers. Eggs 3-4, pale gray or grayish white, speckled with brown, gray, and lavender.

Range.—Northern coniferous forests of the Palearctic and Nearctic Regions (south in high mountains of western United States almost to the Mexican boundary). (Three species, two exclusively North American, one Palearctic.)

KEY TO THE SPECIES AND SUBSPECIES OF PERISOREUS.

a. Abdomen and under tail-coverts light tawny or tawny-ochraceous; greater and primary wing-coverts partly cinnamon-rufous. (Northern Europe and Asia.)

Perisoreus infaustus (extralimital) ^a

aa. No tawny or rufous in the plumage. (North American species.)

b. Forehead, sides of head, throat, and chest whitish. (Adults.)

c. Feathers of back without distinct paler shaft-streaks; breast, belly, etc., deep grayish, much darker than white or whitish of throat and chest. (*Perisoreus canadensis*.)

d. Hindneck blackish or blackish slate, this color invading the occiput to at least the middle portion, and laterally extended broadly to and surrounding the eye; general coloration darker.

e. At least the fore part of crown distinctly white; gray of upper and under parts less brownish.

f. Dusky area of hindneck, etc., more slaty, at least anteriorly, and crown more extensively white; under tail-coverts white, or nearly so; general coloration not so dark. (New Brunswick, Maine, northern New York, etc., to South Dakota, Alberta, and north to Mackenzie.)

Perisoreus canadensis canadensis (p. 366)

ff. Dusky area of hindneck, etc., more blackish; crown less extensively white; under tail-coverts deep brownish gray; general coloration darker. (Labrador, north to Davis Inlet.)

Perisoreus canadensis nigricapillus, adults (p. 368)

ee. Crown grayish anteriorly, dusky posteriorly, only the forehead being white or whitish; gray of upper and under parts more brownish. (Alaska, north and west of Cook Inlet.)

Perisoreus canadensis fumifrons, adults (p. 369)

dd. Hindneck gray, or if inclining to blackish this color restricted to the hindneck, the whole crown, to the occiput, being white; the gray scarcely, if at all, extending laterally to the eyes; general coloration paler. (Rocky Mountain district, from eastern British Columbia, Washington and Oregon, Idaho, and Montana to New Mexico and Arizona.)

Perisoreus canadensis capitalis, adults (p. 370)

cc. Feathers of back with distinct paler shaft-streaks; breast, belly, etc., very pale gray or grayish white, little if any darker than color of throat and chest. (*Perisoreus obscurus*.)

^a *Corvus infaustus* Linnæus, Syst. Nat., ed. 10, i, 1758, 107.—*Perisoreus infaustus* Bonaparte, Geog. and Comp. List, 1838, 27.

- d. Smaller and browner (wing averaging less than 136, tail averaging less than 127; back, etc., deep hair-brown to almost sepia, under parts brownish white). (Coast of northern California, Oregon, Washington, and British Columbia.).....*Perisoreus obscurus obscurus*, adults (p. 372)
- dd. Larger and grayer (wing averaging more than 139.5, tail averaging more than 133.5; back, etc., deep mouse gray, under parts grayish white). (Interior of British Columbia, Washington, Oregon, and northern California.).....*Perisoreus obscurus griseus*, adults (p. 373)
- bb. Forehead, sides of head, throat, and chest dusky grayish, or mostly so. (Young.)
- c. Feathers of back with distinct paler shaft-streaks.
 - d. Browner.....*Perisoreus obscurus obscurus*, young (p. 372)
 - dd. Grayer.....*Perisoreus obscurus griseus*, young (p. 373)
- cc. Feathers of back without paler shaft-streaks.
 - d. Crown not paler than back (usually darker).
 - e. Less dark.
 - f. General gray color more slaty.
Perisoreus canadensis canadensis, young (p. 366)
 - ff. General gray color more brownish.
Perisoreus canadensis fumifrons, young (p. 369)
 - ee. Darker.....*Perisoreus canadensis nigricapillus*, young (p. 368)^a
 - dd. Crown paler than back.....*Perisoreus canadensis capitalis*, young (p. 370)

PERISOREUS CANADENSIS CANADENSIS (Linnaeus).

CANADA JAY.

Adult.—Forehead (including nasal tufts), fore part of crown, loreal, suborbital, auricular and malar regions, chin, throat, and chest white; hindneck, occiput, posterior portion of crown, and postocular region dull brownish slate-black or blackish slate, more or less tinged with gray anteriorly, next to white of forehead; back, scapulars, lesser wing-coverts, rump, and upper tail-coverts plain mouse gray, paler next to the blackish of the hindneck; wings and tail slate-gray, the primaries slightly more bluish; remiges and rectrices tipped (not abruptly) with white, the middle and greater wing-coverts also sometimes tipped with white, but much more narrowly; under parts of body plain drab-gray, paler (almost, sometimes quite, white) on anal region and under tail-coverts; bill, legs, and feet black; iris brown.

Young.—Above, including pileum and hindneck, slate color or brownish slate; nasal plumes, and loreal, orbital, and auricular regions slate-blackish; under parts, including chin, throat, and chest, plain brownish slate-gray, the under side of head sometimes slightly mixed with whitish; wings and tail as in adults, but whitish tips to remiges and rectrices less distinct; bill partially light-colored.

Adult male.—Length (skins), 266.5–289.5 (276); wing, 149–148 (145.5); tail, 135–151 (144.5); exposed culmen, 21.5–22.5 (22); depth of bill at base, 10–12 (11); tarsus, 34–37 (35.5); middle toe, 17–19 (18).^b

^a The differences between the young of these forms are by no means well defined, but they average as above.

^b Six specimens.

Adult female.—Length (skins), 254–274.5 (268); wing, 139.5–147 (144); tail, 139–149 (145); exposed culmen, 19–20.5 (20); depth of bill at base, 11–12 (11.5); tarsus, 34–36.5 (35.5); middle toe, 17.5–20 (19).^a

Eastern division of the Boreal Province (except Labrador and Newfoundland), from northern limit of coniferous forests south to Nova Scotia, New Brunswick, northern Maine, higher mountains of New Hampshire, Vermont, and northern New York (Adirondacks), northern Ontario, northern Michigan, and northern Minnesota—irregularly, casually, or during winter to Massachusetts (Cambridge, etc.), vicinity of New York City, Pennsylvania (Lancaster County), southern Ontario, southern Michigan, southeastern Wisconsin (Racine), and South Dakota (Crystal Cave, October); west to Alberta (Blueberry Hills, Grand Cache, Banff, St. Anns, etc.); north to Lower Anderson and Mackenzie rivers and west side of Hudson Bay (to south of latitude 60°), etc.

[*Corvus*] *canadensis* LINNÆUS, Syst. Nat., ed. 12, i, 1766, 158 (based on *Le Geay brun de Canada* BRISSON, Orn., ii, 54, pl. 4, fig. 2).—GMELIN, Syst. Nat., i, 1788, 376.—LATHAM, Index Orn., i, 1790, 160.

Corvus canadensis FORSTER, Philos. Trans., lxii, 1772, 386 (Hudson Bay).—WILSON, Am. Orn., iii, 1811, 33, pl. 21, fig. 1.—SABINE, App. Franklin's Journ., 1823, 572.—BONAPARTE, Journ. Ac. Nat. Sci. Phila., ii, 1823, 360; Ann. Lyc. N. Y., iii, 1828, 58.—NUTTALL, Man. Orn. U. S. and Can., i, 1832, 232.—AUDUBON, Orn. Biog., ii, 1834, 53; v, 1839, 208, pl. 107.

Garrulus canadensis SWAINSON and RICHARDSON, Fauna Bor.-Am., ii, 1831, 295.—AUDUBON, Synopsis, 1839, 155, part; Birds Am., oct. ed., iv, 1842, 121, pl. 234.—PUTNAM, Proc. Essex Inst., i, 1856, 228 (Massachusetts, casual).—SCHLEGEL, Mus. Pays-Bas, Coraces, 1867, 65, part (Hudson Bay).—TRIPPE, Proc. Essex Inst., vi, 1871, 117 (Minnesota, resident).

Perisoreus canadensis BONAPARTE, Geog. and Comp. List, 1838, 27.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 590, part (Minnesota; n. United States); Cat. N. Am. Birds, 1859, no. 443, part.—VERRELL, Proc. Essex Inst., iii, 1862, 152 (Oxford Co., Maine, winter).—BOARDMAN, Proc. Bost. Soc. N. H., ix, 1862, 127 (Calais, Maine, resident).—LAWRENCE, Ann. Lyc. N. Y., viii, 1866, 289 (New York City, accidental).—MCILWRAITH, Proc. Essex Inst., v, 1866, 91 (Hamilton, Ontario); Birds Ontario, 1892, 274 (Oshawa, Ontario, 1 spec.).—TURNBULL, Birds E. Penn. and N. J., 1869, 43 (winter straggler).—MAYNARD, Proc. Bost. Soc. N. H., xiv, 1872, 375 (Lake Umbagog, Maine, breeding).—COUES, Check List, 1873, no. 239, part; 2d. ed., 1882, no. 359, part.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 299, part, pl. 41, fig. 3, pl. 42, fig. 4.—SHARPE, Cat. Birds Brit. Mus., iii, 1877, 104.—GIBBS, Bull. U. S. Geol. and Geod. Surv. Terr., v, 1879, 488 (Michigan; in winter as far as s. boundary).—ROBERTS, Rep. State Geologist Minn., 1880, 376 (n. Minnesota, abt.).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 297.—MAYNARD, Birds E. N. Am., 1881, 167.—GUNN, Bull. Nutt. Orn. Club, vi, 1881, 120 (Sturgeon R., Michigan, Aug.).—MERRIAM, Bull. Nutt. Orn. Club, vi, 1881, 231 (Lewis Co., New York, resident).—BROWN, Bull. Nutt. Orn. Club, vii, 1882, 112 (Scarborough, near Portland, Maine, 1 spec., Oct. 15).—JEFFRIES, Bull. Nutt. Orn. Club, vii, 1882, 181 (Grand Falls, New Brunswick; descr. nest and eggs).—CHAMBERLAIN, Bull. N. H. Soc. New

^a Four specimens.

- Brunsw., i, 1882, 43 (resident).—BREWSTER, Proc. Bost. Soc. N. H., xxii, 380 (Anticosti I., resident); Auk, vii, 1890, 91 (near Cambridge, Massachusetts, 1 spec., Oct. 17).—SETON, Auk, ii, 1885, 335 (Toronto, Ontario, winter 1836 and spring 1837, numerous).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 484.—(?) NELSON, Nat. Hist. Coll. Alaska, 1887, 164 (headwaters Yukon R. to mouth of Tarnac R.).—CHADBOURNE, Auk, iv, 1887, 104 (White Mts., New Hampshire, common).—CLARK, Auk, iv, 1887, 256 (Somerset, Vermont, 1 spec., Aug. 5).—COOKE, Bird Migr. Miss. Val., 1888, 158 (breeding in n. Minnesota).—CLARKE (W. E.), Auk, vii, 1890, 322 (Fort Churchill, Hudson Bay Territory).—WARREN, Birds Penn., 1890, 201 (Lancaster Co., 1 spec., Feb., 1889).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1891, 566 (localities in Manitoba; habits).—MACFARLANE, Proc. U. S. Nat. Mus., xiv, 1891, 439 (lower Anderson and Mackenzie rivers; descr. nest).—MORRIS, Auk, ix, 1892, 395 (Mount Graylock, Massachusetts, 1 spec., June 18).—WHITE, Auk, x, 1893, 225 (Macinac I., Michigan, July 10).—COOK, Birds Mich., 1893, 100 (s. to mid. of s. peninsula).—NUTTING, Bull. Labr. N. H. Univ. Iowa, ii, no. 3, 1893, 273 (Grand Rapids, lower Saskatchewan).—ATKINSON, Biol. Rev. Ont., i, 1894, 99 (Port Arthur, n. shore Lake Superior).—BENDIRE, Life Hist. N. Am. Birds, ii, 1895, 385, pl. 3, figs. 18, 19 (eggs).—NEHRLING, Our Native Birds, etc., ii, 1896, 327.—BRUNER, Rep. Nebr. Hort. Soc. for 1896-97 (1898), 121 (West Point and Crawford, Nebraska; no date).—WARREN (O. B.), Auk, xvi, 1899, 12 (Mahoning, Michigan; habits; descr. nest and eggs; 4 photographs).—MORRELL, Auk, xvi, 1899, 251 (Cumberland Co., Nova Scotia, common resid.; habits).—COUBEAUX, Ottawa Nat., 1900, 29 (s. Saskatchewan, winter resid.).—AMES, Auk, xix, 1902, 94 (Aylmer, Ontario, 1 spec., Nov. 9, 1901).
- [*Perisoreus*] *canadensis* BONAPARTE, Conspect. Av., i, 1850, 375.—COUES, Key N. Am. Birds, 1872, 166, part.
- P[erisoreus] canadensis* CABANIS, Mus. Hein, i, 1851, 219.—NELSON, Bull. Essex Inst., viii, 1876, 113 (near Racine, Wisconsin, winter, 1839).—COUES, Key N. Am. Birds, 2d. ed., 1884, 425, part.—RIDGWAY, Man. N. Am. Birds, 1887, 350.
- [*Perisoreus canadensis*.] Var. *canadensis* RIDGWAY, Bull. Essex Inst., v, 1873, 194 (diagnosis).
- [*Perisoreus canadensis* var. *canadensis* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 298.
- [*Perisoreus canadensis* var. *capitalis*] s. *canadensis* COUES, Birds N. W., 1874, 221 (synonymy).
- Perisoreus canadensis canadensis* HOWE, Osprey, new ser., i, July, 1902, 104, part (crit.).
- Dysornithia canadensis* SWAINSON, Fauna Bor.-Am., ii, 1831, 495.
- Garrulus fuscus* VIEILLLOT, Nouv. Dict. d' Hist. Nat., xii, 1817, 479; Enc. Méth., ii, 1823, 892.
- P[ica] nuchalis* WAGLER, Syst. Av., 1827, Pica, sp. 14.
- Garrulus brachyrhynchus* SWAINSON, Fauna Bor.-Am., ii, 1831, 296 (=young).—NUTTALL, Man. Orn. U. S. and Can., ii, 1834, 599.
- Garrulus brachyrhynchus* SWAINSON, Fauna Bor.-Am., ii, 1831, pl. 55.

PERISOREUS CANADENSIS NIGRICAPILLUS Ridgway.

LABRADOR JAY.

Similar to *P. c. canadensis*, but smaller and decidedly darker in color: the dusky hood blacker, covering most of the crown, and surrounding eyes more broadly, the back, etc., much darker mouse gray, the under

parts deep smoke gray instead of light drab-gray, and the under tail-coverts gray instead of white.

Adult male.—Length (skins), 243–274.5 (261); wing, 136–145 (140); tail, 128.5–146.5 (137.5); exposed culmen, 20–21.5 (20.5); depth of bill at base, 10–11.5 (10.5); tarsus, 33.5–37 (35); middle toe, 17.5–18.3 (18).^a

Adult female.—Length (skins), 241.5–256.5 (250); wing, 132.5–137.5 (136.5); tail, 125.5–141 (132.5); exposed culmen, 19–21 (20); depth of bill at base, 9.5–12 (10.5); tarsus, 33.5–35 (34); middle toe, 16.5–18.5 (17.3).^a

Peninsula of Labrador, north to Davis Straits; island of Newfoundland.

Perisoreus canadensis (not *Corvus canadensis* Linnaeus) COUES, Proc. Ac. Nat. Sci. Phila., 1861, 226 (Rigolet, etc., Labrador; habits; notes); Check List, 1872, no. 239, part; 2d ed., 1882, no. 359, part.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 299, part.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 297, part.—PORTER, Auk, xvii, 1900, 72 (Newfoundland).

[*Perisoreus*] *canadensis* COUES, Key N. Am. Birds, 1872, 116, part.

P[erisoreus] canadensis COUES, Key N. Am. Birds, 2d ed., 1884, 425, part.

Garrulus canadensis SCHLEGEL, Mus. Pays-Bas, Coraces, 1867, 65, part (Labrador).

Perisoreus canadensis nigricapillus RIDGWAY, Proc. U. S. Nat. Mus., v, June 5, 1882, 15 (Labrador; coll. U. S. Nat. Mus.); Bull. Nutt. Orn. Club, vii, 1882, 258.—REICHENOW and SCHALOW, Journ. für Orn., 1884, 401 (republishing of orig. descr.).—TURNER, Proc. U. S. Nat. Mus., viii, 1885, 241 (Fort Chimo, Ungava, resident).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 484c.—PALMER (W.), Proc. U. S. Nat. Mus., xiii, 1890, 263 (Fogo I.; Mingan Islands; Canada Bay, Newfoundland; habits).—BENDIRE, Life Hist. N. Am. Birds, ii, 1895, 392, pl. 3, fig. 20 (egg).—NOBTON, Proc. Portl. Soc. N. H., ii, 1901, 155 (Northwest R., Labrador).—BIGELOW, Auk, xix, 1902, 29 (coast n. e. Labrador).

P[erisoreus] canadensis nigricapillus RIDGWAY, Man. N. Am. Birds, 1887, 359.

Perisoreus canadensis fumifrons (not of Ridgway) HOWE, Osprey, new ser., i, July, 1902, 105, part (crit.).

PERISOREUS CANADENSIS FUMIFRONS Ridgway.

ALASKA JAY.

Similar to *P. c. canadensis*, but dusky hood extending over the crown, leaving only the forehead white; the latter often more or less tinged with smoky gray; the general color of upper and lower parts browner, and size less. Agreeing with *P. c. nigricapillus* in greater extent of the dusky hood, but this browner, with the anterior portion more distinctly ashy, the forehead less purely white, and the general color, both above and below, decidedly paler, the under tail-coverts dirty whitish or very pale brownish gray.

Adult male.—Length (skins), 256.5–273 (266); wing, 131.5–145 (139); tail, 128.5–138.5 (135); exposed culmen, 18–22.5 (20); depth of bill at base, 10–12 (11); tarsus, 32.5–36 (34.8); middle toe, 16.5–19 (18).^b

^a Six specimens.

^b Five specimens.

Adult female.—Length (skin), 264; wing, 134; tail, 132; exposed culmen, 20; tarsus, 34.5; middle toe, 17.^a

Alaska, except treeless coast district north of Alaska peninsula and coast forest from Cook Inlet east and southward.

Perisoreus canadensis (not *Corvus canadensis* Linnæus) DALL and BANNISTER, *Trans. Chicago Ac. Sci.*, i, 1869, 286 (St. Michael, Fort Yukon, etc., Alaska).—FINSCH, *Abh. Nat. Forh. Brem.*, iii, 1872, 40 (Kenai Peninsula, Alaska).—COUES, *Check List*, 1873, no. 239, part.—ADAMS, *Ibis*, 1878, 426 (30 miles n. of St. Michael).

[*Perisoreus*] *canadensis* COUES, *Key N. Am. Birds*, 1872, 166, part.

Perisoreus canadensis var. *obscurus*, part, RIDGWAY, *Bull. Essex Inst.*, v, Nov., 1873, 194, part (Alaska); v, Dec., 1873, 199, part (Alaska).—BAIRD, BREWER, and RIDGWAY, *Hist. N. Am. Birds*, ii, 1874, 302, part (specimens from Alaska).

Perisoreus canadensis fumifrons RIDGWAY, *Proc. U. S. Nat. Mus.*, iii, Mar. 7, 1880, 5 (St. Michael, Alaska; coll. U. S. Nat. Mus.); *Nom. N. Am. Birds*, 1881, no. 297b.—REICHENOW and SCHALOW, *Journ. für Orn.*, 1884, 401 (reprint of orig. descr.).—COUES, *Check List*, 2d ed., 1882, no. 360.—NELSON, *Cruise "Corwin,"* 1881 (1883), 73 (Alaska Peninsula to Kotzebue Sound); *Nat. Hist. Coll. Alaska*, 1887, 164, pl. 11 (lower Yukon; "Kadiak and Sitkan districts").—MCLENNAN, *Cruise "Corwin,"* 1884, 117 (Kowak R., n. v. Alaska).—AMERICAN ORNITHOLOGISTS' UNION, *Check List*, 1886, no. 484b.—TURNER, *Contr. Nat. Hist. Alaska*, 1886, 167 (St. Michael; Yukon R.).—TOWNSEND, *Cruise "Corwin,"* 1885 (1887), 92 (Kowak R.); *Auk*, iv, 1887, 12 (do.).—BENDIRE, *Life Hist. N. Am. Birds*, 1895, 390.—OSGOOD, *N. Am. Fauna*, no. 21, 1901, 77 (Hope City and Tyonek, Cook Inlet).—HOWE, *Osprey*, new ser., i, 1902, 105, part (crit.).

P[erisoreus] canadensis fumifrons RIDGWAY, *Man. N. Am. Birds*, 1887, 360.

P[erisoreus] c[anadensis] fumifrons COUES, *Key N. Am. Birds*, 2d ed., 1884, 425.

PERISOREUS CANADENSIS CAPITALIS Baird.

WHITE-HEADED JAY.

Similar to *P. c. canadensis*, but larger and lighter colored; whole head white, except immediately round and behind eyes, which, together with the hindneck, are slate-grayish (in more northern specimens inclining to blackish slate); gray of upper and under parts paler. Young paler than that of *P. c. canadensis* or *P. c. fumifrons*, with pileum much paler gray or grayish white, the feathers of under parts more or less tipped with white or pale grayish.

Adult male.—Length (skins), 263–287.5 (273.5); wing, 146.5–157.5 (153.5); tail, 139–151.5 (146.5); exposed culmen, 20.5–22.5 (21.5); depth of bill at base, 10.5–11.5 (11); tarsus, 34.5–38 (36); middle toe, 18–21 (19.5).^b

Adult female.—Length (skins), 264–283 (270); wing, 143.5–151 (148.5); tail, 140–149 (143.5); exposed culmen, 19.5–21.5 (21); depth of bill at base, 9.5–10.5 (10); tarsus, 32–35.5 (34.5); middle toe, 17–19.5 (18).^c

Higher coniferous forests of the Rocky Mountain district, from

^a One specimen.

^b Ten specimens.

^c Seven specimens.

eastern British Columbia (Lac la Hache, Bonaparte, Vernon, Nelson, Field, etc.), northwestern Montana, eastern Washington (Sinzoknoteen Depot, etc.), Idaho (Teton Canyon, Salmon River Mountains, Sawtooth Mountains, etc.), eastern Oregon (Camp Harney, Canyon City Mountains, Blue Mountains, Maury Mountains, etc.), to Arizona (White Mountains) and New Mexico (upper Pecos River, breeding above 8,000 feet; San Miguel County, breeding from 9,000 feet to timber line); east to Black Hills, western South Dakota.

Perisoreus canadensis (not *Corvus canadensis* Linnæus) GAMBEL, Journ. Ac. Nat. Sci. Phila., 2d ser., i, 1847, 45 (Rocky Mts.); Proc. Ac. Nat. Sci. Phila., 1847, 201 (do.).—BAIRD, Rep. Pacific R. R. Surv., x, pt. iii, 1857, 14 (Sangre de Cristo Pass, Colorado); ix, 1858, 590, part (Black Hills and Laramie Peak, Wyoming; Sangre de Cristo Pass); Cat. N. Am. Birds, 1859, no. 443, part.—HAYDEN, Rep. U. S. Geol. Surv. Terr., 1862, 171 (Laramie Range and Black Hills).—STEVENSON, Prelim. Rep. U. S. Geol. Surv. Terr. for 1870 (1871), 465 (Henry's Fork and Green R., Wyoming).—MERRIAM, Rep. U. S. Geol. Surv. Terr. for 1871 (1872), 689 (Teton Canyon, etc., Wyoming), 712 (Teton Basin, Idaho).—ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 163, 179 (mountains of Colorado; Wasatch Mts., Utah).—COUES, Check List, 1873, no. 239, part.—BENDIRE, Proc. Bost. Soc. N. H., 1877, 126 (Camp Harney, e. Oregon, resident).—SCOTT, Bull. Nutt. Orn. Club, iv, 1879, 94 (Twin Lakes, Colorado, breeding).

[*Perisoreus*] *canadensis* COUES, Key N. Am. Birds, 1872, 166, part.

Perisoreus canadensis canadensis HOWE, Osprey, new ser., i, 1902, 104, part (Black Hills, Wyoming; crit.).

Perisoreus canadensis, var. *capitalis* "Baird MS." RIDGWAY, Bull. Essex Inst., v, Nov., 1873, 193 (Henry's Fork, Wyoming; coll. U. S. Nat. Mus.); v, Dec., 1873, 199.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 302, pl. 41, fig. 4.—COUES, Birds N. W., 1874, 221, excl. syn., part.—HENSHAW, Zool. Exp. W. 100th Merid., 1875, pl. 13.—NELSON, Proc. Bost. Soc. N. H., xvii, 1875, 344 (30 miles s. of Fort Bridger, Wyoming).

Perisoreus canadensis . . . var. *capitalis* COUES, Check List, 1873, 129, App. no. 239b.—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 85 (Fort Garland and South Park, Colorado, May, June; habits), 123 (White Mts., Arizona, Aug.); Zool. Exp. W. 100th Merid., 1875, 339 (Snake R., Fort Garland, South Park, Sangre de Cristo Pass, and Alamosa Creek, Colorado; White Mts., Arizona; habits).

Perisoreus canadensis, *β. capitalis* RIDGWAY, Field and Forest, ii, June, 1877, 208 (Colorado).

[*Perisoreus canadensis*] var. *capitalis* RIDGWAY, Bull. Essex Inst., v, 1873, 194.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 298.

Perisoreus canadensis capitalis COUES, Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 608 (Rocky Mts., lat. 49°); Check List, 2d ed., 1882, no. 362.—BREWER, Bull. Nutt. Orn. Club, iv, 1879, 239 (Colorado; habits; descr. nest and eggs).—DREW, Bull. Nutt. Orn. Club, vi, 1881, 140 (San Juan Co., Colorado; habits; notes).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 297a.—WILLIAMS, Bull. Nutt. Orn. Club, vii, 1882, 62 (Belt Mts., Montana).—HENSHAW, Auk, iii, 1886, 75 (upper Pecos R., New Mexico, breeding above 8,000 ft.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 484a.—MEARNS, Auk, vii, 1890, 256 (White Mts., Arizona, resident).—MERRIAM, North Am. Fauna, no. 5, 1891, 100 (Salmon River Mts., Sawtooth Mts., etc., Idaho).—RHODES, Auk, x, 1893, 16 (British Columbia); Proc. Ac. Nat.

- Sci. Phila., 1893, 45, 63 (Lac la Hache, Bonaparte, Vernon, Nelson, and Field, int. British Columbia).—RICHMOND and KNOWLTON, Auk, xi, 1894, 304 (Montana, up to 9,000 ft.).—BENDIRE, Life Hist. N. Am. Birds, ii, 1895, 388.—MERRILL, Auk, xiv, 1897, 356 (Fort Sherman, n. w. Idaho).—MITCHELL, Auk, xv, 1898, 309 (San Miguel Co., New Mexico, breeding from 9,000 ft. to timber line).—CARY, Auk, xviii, 1901, 235 (Black Hills, Wyoming, breeding).—HOWE, Osprey, new ser., i, 1902, 104 (crit.).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 277.
- P[erisoreus] c[anadensis] capitalis* COUES, Key N. Am. Birds, 2d ed., 1884, 425.
- P[erisoreus] canadensis capitalis* RIDGWAY, Man. N. Am. Birds, 1887, 360.
- Perisoreus capitalis* SHARPE, Cat. Birds Brit. Mus., iii, 1877, 106, pl. 5, fig. 1 (Colorado).

PERISOREUS OBSCURUS OBSCURUS (Ridgway).

OREGON JAY.

Similar in general appearance to *P. c. canadensis*, but smaller; upper parts brownish instead of grayish, the feathers of back with distinct whitish shaft-streaks, and under parts dull white instead of grayish.

Adults (sexes alike).—Nasal tufts and forehead white, the latter more or less tinged with smoky brown, and often with feathers of the posterior portion tipped with sooty brown; rest of pileum dark sooty brown, approaching sooty black; an indistinct whitish collar across lower hindneck; back, scapulars, and rump deep hair brown, varying to deep broccoli brown or almost sepia, the interscapulars with whitish shaft-streaks; wings and tail deep drab-gray, the middle and greater wing-coverts and tertials narrowly margined terminally with whitish, the rectrices more broadly but indistinctly tipped with the same; loreal, orbital, auricular, and malar regions white or grayish white, usually more or less tinged or mottled with brown; chin and throat white; rest of under parts brownish white, the flanks tinged with grayish brown; bill, legs, and feet black; iris brown.

Young.—Entire pileum and hindneck dull sooty brown or grayish sepia, the feathers narrowly and indistinctly margined with paler; no whitish collar across lower hindneck; sides of head similar in color to pileum, the auricular region with indistinct dull whitish shaft-streaks; nasal tufts sepia brown; chin and anterior portion of malar region dirty brownish white; throat dull grayish brown, intermixed with dull grayish white; rest of under parts pale broccoli brown, some of the feathers with indistinct paler shaft-streaks; wings, tail, back, etc., essentially as in adults; bill partly light-colored (fleshy in life?).

Adult male.—Length (skin), 245; wing, 135.5; tail, 128; exposed culmen, 18; tarsus, 33.5; middle toe, 17.^a

Adult female.—Length (skins), 240.5–259 (244); wing, 129.5–137 (135); tail, 122–128.5 (126); exposed culmen, 17.5–19 (18); depth of bill at base, 8.5–10 (9.5); tarsus, 32.5–33.5 (32.7); middle toe, 16.5–18 (17).^b

^a One specimen.

^b Six specimens.

Pacific coast district, from Humboldt County, California, to southern British Columbia (Vancouver Island and coast of opposite mainland).

(?) *Garrulus canadensis* (not *Corvus canadensis* Linnæus) AUDUBON, Synopsis, 1839, 155, part (Columbia R.).^a

Perisoreus canadensis BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 590, part (Port Townsend, Shoalwater Bay, and Cascade Mts., Washington); Cat. N. Am. Birds, 1859, no. 443, part.—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 216, excl. syn. and description (mouth of Columbia R.; Puget Sound; habits; notes).—COOPER, Orn. Cal., 1870, 307, part; excl. syn., descr., and figs.—COUES, Check List, 1873, no. 239, part.

[*Perisoreus*] *canadensis* COUES, Key N. Am. Birds, 1872, 166, part.

[*Perisoreus canadensis*.] Var. *obscurus* RIDGWAY, Bull. Essex Inst., v, Nov., 1873, 194 (first descr.).

Perisoreus canadensis, var. *obscurus* RIDGWAY, Bull. Essex Inst., v, Dec., 1873, 199 (redescribed; type from Shoalwater Bay, Washington; coll. U. S. Nat. Mus.).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 302, part.

Perisoreus canadensis . . . var. *obscurus* COUES, Check List, 1873, 129, App. no. 239a.

[*Perisoreus canadensis* var. *capitalis*] b. *obscurus* COUES, Birds N. W., 1874, 221, excl. syn., part (synonymy).

Perisoreus canadensis obscurus (not of Mearns, 1879) COUES, Check List, 2d ed., 1882, no. 361, part.—HOWE, Osprey, new ser., i, 1902, 105 (crit.).

P[erisoreus] c[anadensis] *obscurus* COUES, Key N. Am. Birds, 2d ed., 1884, 425, part.

Perisoreus obscurus SHARPE, Cat. Birds Brit. Mus., iii, 1877, 105, pl. 5, fig. 2 (British Columbia; Straits of Fuca).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 298, part.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 485, part.—ANTHONY, Auk, iii, 1886, 167 (Washington Co., n. w. Oregon; habits; descr. nest and eggs).—TOWNSEND, Proc. U. S. Nat. Mus., x, 1887, 211, part (Humboldt Co., n. w. California).—BELDING, Land Birds Pacific Distr., 1890, 111, part (mouth of Columbia R.; Beaverton, Willamette Valley, Puget Sound, etc.).—SWALLOW, Auk, viii, 1891, 397 (Clatsop Co., n. w. Oregon; descr. nest).—FANNIN, Check List Birds Brit. Col., 1891, 32.—LAWRENCE (R. H.), Auk, ix, 1892, 45 (Grays Harbor, Washington).—RHODES, Proc. Ac. Nat. Sci. Phila., 1893, 45, 63 (Nisqually, Washington; Vancouver I. and opp. coast of mainland).—BENDIRE, Life Hist. N. Am. Birds, ii, 1895, 394, part, pl. 3, fig. 21 (egg).—(?) RATHBUN (S. F.), Auk, xix, 1902, 136 (Seattle, Washington, fall and winter, breeding in mountains to eastward).—HELLER, Condor, iv, 1902, 46 (s. Mendocino Co., California, resident).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 278.

P[erisoreus] *obscurus* RIDGWAY, Man. N. Am. Birds, 1887, 360, part.

PERISOREUS OBSCURUS GRISEUS Ridgway.

GRAY JAY.

Similar to *P. o. obscurus*, but decidedly larger (except feet), and coloration much grayer; back, etc., deep mouse gray, instead of brown, remiges and tail between gray (no. 6) and smoke gray, instead of drab-gray, and under parts grayish white instead of brownish white.

^aEither this or *P. o. griseus*.

Adult male.—Length (skins), 231–269 (254); wing, 138.5–151 (143.5); tail, 130.5–143.5 (138); exposed culmen, 18–20.5 (19.5); depth of bill at base, 9.5–11 (10); tarsus, 33.5–36 (34.5); middle toe, 16.5–18.5 (17).^a

Adult female.—Length (skins), 246.5–269 (254.5); wing, 134.5–144 (140.5); tail, 131–139.5 (135); exposed culmen, 17.5–20.5 (19); depth of bill at base, 9.5–10.5 (10); tarsus, 32.5–33.5 (33); middle toe, 16.5–17.5 (17).^b

Interior districts of northern California^c (northern Sierra Nevada, upper Sacramento Valley, Mount Shasta, etc.), north through central Oregon and Washington to interior of British Columbia.

Perisoreus canadensis (not *Corvus canadensis* Linnaeus) NEWBERRY, Rep. Pacific R. R. Surv., x, pt. vi, 1857, 85 (upper Sacramento Valley and Fort Reading, California; Columbia R.).—FEILNER, Ann. Rep. Smithsonian Inst. for 1864 (1865), 427 (Lassen Butte and Shasta Butte, n. California; habits).—COOPER, Orn. Cal., 1870, 307, part (n. California and higher Sierra Nevada).

Perisoreus canadensis canadensis HOWE, Osprey, new ser., i, 1902, 104, part (crit.).^d

P[erisoreus] *obscurus* (not *Perisoreus canadensis*, var. *obscurus* Ridgway) HESHAU, Orn. Rep. Wheeler's Surv., 1879, 308 (n. e. California to Columbia R.; habits; crit.).—RIDGWAY, Man. N. Am. Birds, 1887, 360, part.

Perisoreus obscurus RIDGWAY, Nom. N. Am. Birds, 1881, no. 298, part.—AMERICAN ORNITHOLOGIST'S UNION, Check List, 1886, no. 485, part.—TOWNSEND, Proc. U. S. Nat. Mus., x, 1887, 211, part (Mount Shasta, near timber line).—MERRILL, Auk, v, 1888, 261 (Fort Klamath, e. Oregon).—BELDING, Land Birds Pacific Distr., 1890, 111, part (upper Sacramento Valley, Lassen Butte, Shasta Butte, Camp Bidwell, etc.).—BENDIRE, Life Hist. N. Am. Birds, ii, 1895, 394, part.—MERRIAM, North Am. Fauna, no. 16, 1899, 119 (Mount Shasta, 5,900–6,800 ft.).

Perisoreus canadensis obscurus MEARNS, Bull. Nutt. Orn. Club, iv, Oct., 1879, 195 (Fort Klamath, e. Oregon).—COOPER, Check List, 2d ed., 1882, no. 361, part.

Perisoreus canadensis (*γ. obscurus*?) RIDGWAY, Proc. U. S. Nat. Mus., i, 1879, 425 (Summit Meadows, California).

[*Perisoreus canadensis* var. *capitata*] *b. obscurus* COOPER, Birds N. W., 1874, 221, part (in synonymy).

P[erisoreus] *c[anadensis]* *obscurus* COOPER, Key N. Am. Birds, 2d ed., 1884, 425, part.

Perisoreus obscurus griseus RIDGWAY, Auk, xvi, July, 1899, 255 (Keechelus Lake, Kittitas Co., e. Washington; coll. U. S. Nat. Mus.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xviii, 1901, 302 (Check List no. 485a).

P[erisoreus] *o[bscurus]* *griseus* BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 279.

^a Eight specimens.

^b Six specimens.

^c Specimens from northern California (Mount Shasta, Camp Bidwell, etc.) and adjacent parts of Oregon (Fort Klamath) are not typical, being both browner and smaller than examples from eastern Washington and British Columbia. They are, however, nearer the latter than to the coast form (true *P. obscurus*).

^d Comment on the critical remarks in the paper cited are quite unnecessary.

Family PARIDÆ.

THE TITMICE.

Small "ten-primaried" acutiplantar Oscines, with the bill much shorter than the head (much shorter than tarsus), unnotched; nostrils small, nonoperculate, concealed by antrorse latero-frontal plumules; hallux not distinctly, if at all, longer than longest (outer) lateral toe; outer toe not distinctly, if at all, longer than inner; acrotarsium distinctly scutellate; wing rounded, with seventh to fourth primaries longest, the ninth shorter than fifth (usually shorter than first), the tenth at least one-third as long as the ninth.^a

Bill small, very much shorter than head, more or less conoidal, but extremely variable in relative length and thickness and curvature of culmen, the maxillary tomium without trace of subterminal notch, the rhamphotheca smooth throughout; gonys relatively long (twice as long as mandibular rami or more). Nostril very small, roundish, nonoperculate, latero-basal, entirely hidden by antrorse latero-frontal plumules. Rictal bristles usually distinct, but never conspicuous (obsolete in *Auriparus*, *Psaltriparus*, and allied Palearctic genera). "Tongue obtuse, beset at tip with horny bristles."^b Wing well developed, but rounded; eighth to fourth primaries longest, the tenth (outermost) less than half as long as ninth, sometimes scarcely more than one-fourth as long, rarely^c rudimentary, scarcely obvious. Tail variable in relative length, rarely only about half as long as wing,^c usually about as long, sometimes much longer, usually slightly rounded, sometimes excessively graduated, rarely^d emarginate. Tarsus variable as to relative length, but always decidedly longer than middle toe with claw, the acrotarsium distinctly scutellate; outer toe slightly longer than inner toe, its claw reaching to or beyond base of middle claw; hallux equal in length to inner toe, but much stouter, its claw much larger than that of any of the anterior toes, sometimes nearly as long as the digit; basal phalanx of middle toe adherent to outer toe for most if not the whole of its extent, to the inner by not less than half (sometimes all) of its length.

Coloration.—Extremely variable, but never streaked, spotted, nor barred.

Range.—Northern hemisphere in general, chiefly the Palearctic region; one genus, apparently, in Australia.^e

^a Except in the Palearctic genus *Remiza* Stejneger (= *Aegithalus* of authors, not *Aegithalos* Hermann, 1804).

^b Gadow, Cat. Birds, Brit. Mus., viii, 1883, 2.

^c In the Asiatic genus *Cephalopyrus*.

^d In genera *Cephalopyrus* and *Sylviparus* of the Himalayan district (Palearctic region).

^e Judging from external characters alone, I am inclined to consider the Australian genus *Aphalocephala* Oberholser (*Xerophila* Gould) a member of the Paridæ. A related Australian genus or subgenus, *Sphenostoma* Gould, I have not been able to examine. *Certhiparus* Lafresnaye, of New Zealand, I certainly would exclude.

The characters given above apply to the group which Dr. Gadow^a designates as the "Parinæ typicæ," his "Parinæ australes" and "Panurinæ" being excluded, as having probably different relationships, as are also the genera *Suthora* Hodgson and *Cholornis* J. Verreaux, by some authors placed among the Paridæ. Even as thus restricted there is reason for doubting the naturalness of the group, the Remizinæ and Psaltriparinæ together possessing both skeletal and external characters of sufficient importance to suggest the propriety of their separation from the Paridæ,^b while certain genera (for example *Cephalopyrus* Bonaparte) are of still more questionable affinity. *Chamæa* undoubtedly should be removed if we are to have definable groups of Oscines.

In order to show what appear to me to be the relationship of the Paridæ to allied groups, the following "key" is here presented:

- a. Outer toe but little if any longer than inner; hallux (without claw) not longer than inner toe (without claw).
 - b. Bill notched, slender, depressed basally; nostrils operculate, the operculum extending anteriorly to end of nasal fossa.....*Sylviidae*^c
 - bb. Bill without trace of notch, stout (relatively shorter and thicker), not depressed basally; nostrils small, nonoperculate, or else (*Chamæidae*) the operculum not extending to anterior end of nasal fossa.
 - c. Tarsus nearly half as long as wing, twice as long as middle toe without claw; basal phalanx of middle toe adherent to outer toe by only half its length, to inner toe by less than half its length; nostrils large, longitudinal, distinctly operculate, wholly exposed; eighth primary not longer than first.....*Chamæidae*
 - cc. Tarsus less than one-third as long as wing, much less than twice as long as middle toe without claw; basal phalanx of middle toe adherent to outer toe by greater part of its length, to inner toe by at least half its length (entirely adherent in typical forms); nostril small, roundish, nonoperculate, concealed by antrorse latero-frontal plumules; eighth primary longer than third.....*Paridae*
- aa. Outer toe much longer than inner toe; hallux (without claw) longer than inner toe (without claw).
 - b. Hallux (without claw) equal to or longer than outer toe (without claw), the latter not reaching beyond middle of penultimate phalanx of middle toe, its

^a Catalogue of the Birds in the British Museum, viii, 1883, 2.

^b In a paper entitled Notes on the Osteology of the Paridæ, Sittidæ, and Chamæa (Proc. U. S. Nat. Mus., xiii, 1890, 337-345, pl. 27), Mr. Frederic A. Lucas states his "inability to assign osteological characters to the group," equivalent to the family Paridæ as here circumscribed, and adds, "That the group is not a natural one I should hesitate to assert, but it is by no means so homogeneous as the Swallows, Wrens, or Thrushes, so far as I have studied them." The genera upon which Mr. Lucas's conclusions were founded are *Bæolophus*, *Parus*, *Penihestes*, *Psaltriparus*, *Ægithalos*, and *Auriparus*, and the osteological characters which he points out show clearly that these are quite trenchantly separated into two groups, of which only the first two constitute the typical form.

^c Including "Regulinæ" and Polioptilinæ.

claw scarcely reaching to middle of that of middle toe; bill straight; nostrils concealed, non-operculate;^a tenth primary less than one-third as long as ninth.....Sittidæ^b

- bb. Hallux (without claw) shorter than outer toe (without claw), the latter reaching to beyond middle of penultimate phalanx of middle toe, its claw reaching beyond middle of that of middle toe; bill curved, at least terminally; nostril exposed, operculate; tenth primary more than one-third (sometimes more than one-half) as long as ninth.....Certhiidæ^c

The Paridæ, as here restricted, are arboreal, omnivorous, very active, and essentially non-migratory. They are (with perhaps one or two exceptions^a) peculiar to the Northern Hemisphere and are far better represented in the Old World than in the New, North America, including Mexico, possessing less than thirty species and subspecies and but four genera, while about seventy species and at least five genera belong to the Palearctic, Indian, and African regions.

Following is an attempt to define the subfamilies of Paridæ:

- a. Maxilla straight and narrow terminally, with the nasal opening occupying much less than basal half; interorbital septum well ossified up to point of exit of olfactory nerves, or else with foramina much less than half as long as distance, longitudinally, across the orbit; tarsus much less than twice as long as middle toe without claw; basal phalanx of middle toe adherent for entire length to inner toe, to outer toe for more than half its length; exposed culmen equal to or longer than inner toe without claw, the bill much longer than deep or else with gonys more strongly curved than culmen; tail even, very slightly rounded, or emarginate.
- b. Interorbital septum without any large central foramen; bill with either the culmen or gonys (usually both) distinctly convex, its tip not acute; ninth primary shorter than third, the tenth about half as long as ninth; rictal bristles distinct; nest hidden in holes of trees, etc.; eggs white, with or without reddish specks.....Paridæ
- bb. Interorbital septum with a large central foramen; bill with both culmen and gonys nearly straight, its tip acute; ninth primary not shorter than fourth, the tenth much less than half as long as ninth, sometimes almost rudimentary; rictal bristles obsolete; nest attached to branches or twigs of trees or bushes, very bulky; eggs pale greenish blue, speckled with reddish brown.....Remizidæ^c

^a Except in the Australian genus *Neositta* Hellmayr.

^b Comprising, besides *Sitta*, the genera *Callisitta* Bonaparte (Indian; *Dendrophila* Swainson not of Hodgson), and *Neositta* Hellmayr (*Sittella* Swainson, 1837, not of Rafinesque, 1815!) (Australian). *Hypositta* Newton (Madagascar), I would exclude from Sittidæ on account of its excessively elongated middle and outer toes (the latter twice as long as the inner toe) and hallux (nearly as long as tarsus), strongly notched and uncinatæ maxilla, and other characters which together justify the recognition of a special family (*Hyposittidæ*) for its reception.

^c Comprising, besides the genus *Certhia*, the genera *Tichodroma* Bonaparte (Palearctic) and *Climacteris* Temminck (Australian), each of these, however, constituting a separate subfamily.

^a The Australian monotypic genus *Xerophila* Gould; also, possibly, the Australian (monotypic) genus *Sphenostoma* Gould, which I have not seen.

^c The term *Ægithalidæ* has been used for this group; but the name *Ægithalos*, on which it was based, having been transferred, in accordance with requirements of

- aa. Maxilla abruptly contracted terminally, with upper outline strongly convex, the nasal opening occupying more than basal half; interorbital septum contracted to a slender horizontal bar separating two very large foramina which extend much the greater part of the distance, longitudinally, across the orbit; tarsus little if any less than twice as long as middle toe without claw; basal phalanx of middle toe adherent for decidedly less than its entire length to inner toe but for its entire length to outer toe; exposed culmen much shorter than inner toe without claw, the bill nearly as deep at base as long, or else culmen strongly convex, and bill much compressed terminally; tail graduated (sometimes excessively so). (Nest suspended to twigs of trees or bushes, purse-like, very bulky; eggs white, with or without reddish brown specks.) . . . *Psaltriparus*

I have been greatly perplexed as to the question of genera in the subfamily Parinæ, and it is only after a very careful consideration of the subject and close examination and comparison of a majority of the known species that I have reached a decision in the matter; for at the very outset it was clearly evident that no middle course can be taken between two extremes—the recognition of a single genus (*Parus*) for all the Nearctic and Palearctic^a forms or a considerable number of genera. Many authors who oppose or disapprove of the latter course favor the recognition of a genus *Lophophanes* for the crested species of the group; but nothing can be more clear than the fact that if *Lophophanes* be allowed, consistency, or rather scientific accuracy, requires that this genus be restricted to *L. cristatus* and its nearer Palearctic allies, for the crested species of the Nearctic region are all very different in certain structural characters and should, therefore, be segregated as a separate genus (*Bæolophus* Cabanis). The breach once made by elimination of the species comprising these two groups, disintegration must go still further, and the plainly colored black- or brown-capped “chickadees,” represented by *Parus atricapillus* and *P. hudsonicus* and their allies be set apart, for certainly they are very different-looking birds from *P. major* (the type of *Parus* by elimination) and the many Palearctic species of bright or variegated plumage. Although averse to so-called “innovations” and extremely reluctant to take what may seem like radical action in the case, I am convinced that it is best, all things considered, to do so; and that conservatism in this case, as in all others of like kind, simply retards the progress of systematic ornithology, for whose advancement we all profess to strive.

the nomenclatural code, from a genus of this group to one belonging to the next, it obviously can not now be used for either group, and I therefore propose *Remizina* and *Psaltriparina*, respectively, the first being based on the generic name *Remiza* (Stejneger, Proc. U. S. Nat. Mus., ix, 1886, 387), and preferred to one based on *Auriparus* for the reason that the latter genus does not represent so extreme a type of structure.

^aThe Indo-Malayan genus *Melanochlora* Lesson seems very distinct from *Parus* (in the broader sense), judging from the single species (*M. sultaneus*), which I have been able to examine. The African *Melaniparus niger* (Vieillot) I have not seen.

KEY TO THE GENERA OF PARIDÆ.

- a. Exposed culmen equal to or longer than inner toe without claw; basal phalanx of middle toe adherent for entire length to inner toe, for about half its length to outer toe; tarsus much less than twice as long as middle toe without claw.
- b. Bill with either the culmen or gonys (usually both) distinctly convex, its tip not acute; ninth primary shorter than third, not more than twice as long as tenth; rectal bristles distinct. (Subfamily *Parinæ*.^a)
- c. Head crested.
- d. Bill slender, its depth at base equal to not more than half its length; tail emarginate; longer feathers of crest recurved terminally. *Lophophanes* (extralimital)^b
- dd. Bill very stout, its depth at base equal to more than half the length of exposed culmen; tail more or less rounded; longer feathers of crest not recurved terminally. *Bæolophus* (p. 380)
- cc. Head without crest.
- d. Antrorse latero-frontal plumules shorter, only partially covering nostrils; outer side of planta tarsi divided in middle; larger (wing more than 70 mm.); a glossy blue-black band across side of neck connecting the similarly colored vertical and gular areas; under parts olive-yellow with black median stripe; wings and tail dull blue, the former with a yellowish band. (Palearctic.) *Parus* (extralimital)^c
- dd. Antrorse latero-frontal plumules longer, forming a distinct tuft completely covering and overreaching nostrils; outer side of planta tarsi not divided in middle; smaller (wing usually much less than 70 mm.); no black band across side of neck, but black or brown vertical and gular areas separated by a broad space of white or gray; under parts white medially, gray, brown, buffy, or rufescent laterally; wings and tail dusky, with gray or whitish edgings, the former without light-colored band. (Circumpolar.) *Penthestes* (p. 394)
- bb. Bill with both culmen and gonys nearly straight, its tip acute; ninth primary not shorter than fourth, more than twice as long as tenth; rectal bristles obsolete. (Subfamily *Remizinae*.^d) *Auriparus* (p. 419)
- aa. Exposed culmen much shorter than inner toe, without claw; basal phalanx of middle toe adherent for decidedly less than its entire length to inner toe, but for its entire length to outer toe; tarsus nearly twice as long as middle toe without claw. (Subfamily *Psaltriparinae*.^e) *Psaltriparus* (p. 423)

^a See p. 377.^b *Lophophanes* Kaup, Entw. Gesch. Eur. Thierwelt, 1829, 92. (Type, *Parus cristatus* Linnæus.)^c *Parus* Linnæus, Syst. Nat., ed. 10, i, 1758, 189. (Type, by elimination, *P. major* Linnæus.) I shall not here include other Palearctic groups (*Cyanistes* Kaup, type *Parus cyaneus*; *Periparus* Selys-Longchamps, type *P. ater*; *Sittiparus* Selys-Longchamps, type *P. varius*, etc.).^d See p. 377.^e See p. 378.

Genus *BÆOLOPHUS* Cabanis.

Bæolophus^a CABANIS, Mus. Hein., i, 1850, 91. (Type, *Parus bicolor* Linnæus.)
Bacolophus (typographical error?) BONAPARTE, Compt. Rend., xxxviii, 1854, 63.
Bæolophus SELYS-LONGCHAMPS, Bull. Zool. France, ix, 1884, 48.

Crested Parinæ, with the bill very stout (its depth at base equal to more than half the length of exposed culmen); the longer feathers of crest not recurved terminally, and the tail more or less rounded at tip.

Bill short and stout, its depth at base equal to more than half (sometimes more than two-thirds) the length of exposed culmen, the culmen distinctly, though not strongly, convex for terminal half (more or less), the gonys also distinctly convex, and strongly ascending terminally. Wing rather long, but rounded; seventh, sixth, and fifth, or seventh to fourth, primaries longest, the eighth about equal to fourth or third, the ninth not longer than first (sometimes shorter), the tenth about half as long as ninth, or slightly less. Tail shorter than wing (shorter than distance from bend to tip of secondaries in one species^b only), slightly rounded or nearly even. Tarsus decidedly longer than middle toe with claw (about twice as long as exposed culmen).

Coloration.—Above, plain gray or olive, with or without black on head; beneath, dull white or pale gray, the sides and flank sometimes rusty; one species with throat, band across posterior margin of sides of neck, another across sides of head at end of auricular region and margin of pileum black.

Range.—Warmer portions of Nearctic region. (Four species.)

In coloration one species of this genus strongly resembles *Lophophanes cristatus*, of the Palearctic region, in its black throat, two black bands across side of head and neck, and admixture of black in the crest, but the two are very different in other respects, especially in the shape of the bill, which is very slender in *L. cristatus*, whereas in *B. wollweberi* it is shorter and relatively stouter than in any other member of the American group. *L. cristatus* furthermore has the longer feathers of the crest more elongated, with narrower and distinctly recurved tips, and the end of the tail is emarginate instead of slightly rounded. In its perfectly plain coloration *B. inornatus* agrees with *Lophophanes dichrous* of northern India (Nepaul, Sikkim, etc.), the latter being a true *Lophophanes* in structural characters.

KEY TO THE SPECIES AND SUBSPECIES OF *BÆOLOPHUS*.

- a. Throat white or gray; no black on sides of head or neck.
- b. Above slate-gray or olive-gray, the head with black on forehead or crown or else the forehead rusty; sides and flanks cinnamon-rufous or cinnamon-buff.
- c. Crown and crest gray, like back; forehead black or dusky. (Eastern United States, west to edge of Great Plains.).....*Bæolophus bicolor* (p. 381)

^a "βαίος, unbedeutend; λόφος, Schopf."

^b *B. inornatus*.

cc. Crown and crest black or blackish; forehead whitish or rusty. (*Bæolophus atricristatus*.)

d. Smaller (adult male averaging wing 71.2, tail 61.6, culmen 9.4, tarsus 19.6); gray of upper parts darker, more strongly tinged with olive. (Rio Grande Valley and southward to Vera Cruz.)

Bæolophus atricristatus atricristatus (p. 384)

dd. Larger (adult male averaging wing 77.1, tail 66.9, culmen 10.7, tarsus 20.5); gray of upper parts lighter, less tinged with olive. (Central and southern Texas, except Rio Grande Valley.)

Bæolophus atricristatus sennetti (p. 386)

bb. Above brownish gray or grayish brown, the head without any black or rusty; sides and flanks pale brownish gray or grayish brown. (*Bæolophus inornatus*.)

c. Smaller (wing of adult male averaging less than 70, of female not more than 68); color of upper parts browner.

d. Lighter in color, especially the under parts. (California north of San Bernardino Mountains, except shores of San Francisco Bay.)

Bæolophus inornatus inornatus (p. 387)

dd. Darker, especially the under parts. (Vicinity of San Francisco Bay.)

Bæolophus inornatus restrictus (p. 389)

cc. Larger (wing of adult male averaging more than 70, of female more than 68); color of upper parts grayer.

d. Upper parts darker brownish gray. (Southern California and northern Lower California.) *Bæolophus inornatus murinus* (p. 389)

dd. Upper parts lighter brownish gray.

e. Under parts more decidedly grayish; tail and tarsus decidedly longer, bill larger, and middle toe shorter (adult male averaging wing 72.2, tail 59.6, culmen 12.9, tarsus 21.5, middle toe 12.3). (Arid interior districts, north to Nevada, Utah, and Colorado, south to New Mexico, Arizona, and Panamint Mountains, California.)

Bæolophus inornatus griseus (p. 390)

ee. Under parts more whitish; tail and tarsus decidedly shorter, bill smaller, and middle toe longer (adult male averaging wing 71.4, tail 56.5, culmen 11.4, tarsus 19.9, middle toe 13). (Cape district of Lower California.)

Bæolophus inornatus cinereus (p. 391)

aa. Throat black, or partly so; a black band across end of auricular region and another across side of neck. (*Bæolophus wollweberi*.)

b. Darker, with gray of upper parts more olive; the under parts light olive-gray. (South-central Mexico, from Durango and Jalisco to Vera Cruz and Oaxaca.)

Bæolophus wollweberi wollweberi (p. 392)

bb. Paler, with gray of upper parts clearer, the under parts dull grayish-white. (New Mexico and Arizona and southward into Chihuahua and Sonora.)

Bæolophus wollweberi annexus (p. 393)

BÆOLOPHUS BICOLOR (Linnaeus).

TUFTED TITMOUSE.

Adults (sexes alike) in spring and summer.—Forehead black, or sooty black, margined posteriorly, more or less distinctly, with sooty brown; rest of upper parts plain slate-gray; lores dull white, sharply defined against the black frontal patch; orbital region dull white, relieved by a black mark on upper eyelid; auricular region pale gray; malar region and under parts dull white, passing on sides and flanks into

light cinnamon-rufous; bill black; iris brown; legs and feet dusky (bluish gray in life).

Adults in autumn and winter.—Similar to the spring and summer plumage, but gray of upper parts more or less tinged with olive brownish, especially on back, and under parts tinged with pale buffy brownish, especially on chest.

Young.—Similar to adults, but black of forehead duller and more restricted, not forming a distinct or sharply defined patch, and color of sides and flanks paler and duller.

Adult male.—Length (skins), 130–157 (146.2); wing, 74.5–83 (79.8); tail, 65–75 (68.5); culmen, 11–13 (12.1); tarsus, 19.5–22 (20.4); middle toe, 12–14 (13.7).^a

Adult female.—Length (skins), 133–149.5 (144); wing, 72–79.5 (76.7); tail, 61.5–71 (66.8); culmen, 11–13 (12); tarsus, 19–21.5 (20.2); middle toe, 12.5–14 (13.4).^b

Eastern United States; north, regularly, to southern Pennsylvania and New Jersey, central Ohio, northern Indiana (upper Wabash Valley), northern Illinois (except extreme northern portion), southern Iowa (Des Moines, Decatur, and Mahaska counties, etc.), and north-eastern Nebraska (Dakota County); irregularly or casually to Connecticut (Lyme, Hartford, etc.), southern New York (Long Island, Staten Island, Riverdale, Orleans County, Chemung County, etc.), extreme northern portions of Indiana and Illinois, and southern Minnesota (Nobles County^c); west to eastern portion of the Great Plains

^a Thirty-nine specimens.

^b Twenty-three specimens.

Specimens from different geographic areas average, respectively, as follows:

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Middle toe.
MALES.					
Ten adult males from Pennsylvania to Virginia.....	80.4	69.4	11.9	21	13.6
Ten adult males from Mississippi Valley (except Kansas)...	80.9	69.8	12.3	20.8	13.7
Three adult males from eastern Kansas.....	82.5	73.3	10.7	20.8	13.5
Nine adult males from Texas.....	79.3	68.2	12.2	20.9	13.7
Four adult males from Louisiana, Mississippi, and Alabama.	79	68	12.5	20.7	13.6
Ten adult males from Florida.....	77.6	66.4	11.9	20.3	13.3
FEMALES.					
Seven adult females from Maryland to Virginia.....	77.2	66.7	11.6	20.7	13.6
Seven adult females from Mississippi Valley.....	77.9	68.2	12.2	19.9	13.6
One adult female from eastern Kansas.....	82	70	12	21.5	13
Six adult females from Texas.....	74.8	64.7	12.3	20.3	13.1
One adult female from Louisiana.....	75	65	12	19.5	13
Eight adult females from Florida.....	76.4	67.9	11.9	20.2	12.6

I am unable to appreciate any color differences.

^c Said by Dr. Hatch (Birds of Minnesota, 1892, 427) to breed in the county named.

(Nebraska to Texas); south to the Gulf coast, including south-central Florida and eastern and central Texas (south and west to Matagorda, Victoria, and Bexar counties)..

[*Parus*] *bicolor* LINNÆUS, Syst. Nat., ed. 12, i, 1766, 340 (based on *Crested Titmouse*, *Parus cristatus*, Catesby, Nat. Hist. Carolina, i, pl. 57).—GMELIN, Syst. Nat., i, 1788, 1006.—LATHAM, Index Orn., ii, 1790, 567.

Parus bicolor WILSON, Am. Orn., i, 1808, 137, pl. 8, fig. 5.—BONAPARTE, Journ. Ac. Nat. Sci. Phila., iv, 1825, 255; Ann. Lyc. N. Y., ii, 1826, 100; Geog. and Comp. List, 1838, 20.—LESSON, Traité d'Orn., 1831, 456.—AUDUBON, Orn. Biog., i, 1831, 199, pl. 39; Synopsis, 1839, 78; Birds Am., oct. ed., ii, 1841, 143, pl. 125 ("Nova Scotia").—LINSLEY, Am. Journ. Sci., xlv, 1843, 255 (Connecticut).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 32.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 731.—COOKE, Bird Migr. Miss. Val., 1888, 277 (north rarely to Minnesota, common to s. Iowa).—DUTCHER, Auk, x, 1893, 277 (Brooklyn, Long I.).—BUTLER, Bull. Brookv. Soc. N. H., No. 2, 1886, 38 (Franklin Co., Indiana, resident).—BECKHAM, Proc. U. S. Nat. Mus., x, 1888, 692 (San Antonio, Texas, common; Leon Springs, Texas, 1 spec.).—RIDGWAY, Orn. Illinois, i, 1889, 79.—EVERMANN, Auk, vi, 1889, 29 (Carroll Co., Indiana, breeding).—CHAPMAN, Auk, vi, 1889, 305 (Englewood, New Jersey, 1 spec., Aug. 19, 1888).—MCBRIDE, Proc. Ind. Ac. Sci. for 1891 (1892), 167 (Elkhart Co., Indiana, breeding).—DUTCHER, Auk, x, 1893, 277 (Brooklyn, New York, 1 spec.).—ULREY and WALLACE, Proc. Ind. Ac. Sci., 1895, 158 (Wabash Co., Indiana, common resident).—HADLEY, Proc. Ind. Ac. Sci., 1897, 196 (Wayne Co., Indiana, common resident).—WAYNE, Auk, xiv, 1897, 98 (descr. remarkable nest).—POSSON, Auk, xvi, 1899, 196 (Holly, Orleans Co., New York, 1 spec., Mar. 17, 1889).—BEYER, Proc. Louis. Soc. Nat. for 1897-1899 (1900), 43 (Louisiana, resident).—BRAISLIN, Auk, xix, 1902, 148 (Sheepshead Bay, Long I., 1 spec., Mar.).

P[arus] bicolor RIDGWAY, Man. N. Am. Birds, 1887, 561.

P[arus] bicolor bicolor BANGS, Auk, xv, Apr., 1898, 181, in text.

P[arus] bicolor MAXIMILIAN, Journ. für Orn., 1858, 118 (New Harmony, Indiana; Missouri).

Lophophanes bicolor BONAPARTE, Consp. Av., i, 1850, 228.—CASSIN, Illustr. Birds Cal., Tex., etc., 1853, 18.—WOODHOUSE, in Rep. Sitgreaves, Expl. Zuffi and Col. R., 1853, 68 (Indian Territory).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 384; Cat. N. Am. Birds, 1859, no. 285; Review Am. Birds, 1864, 78.—BARNARD, Ann. Rep. Smithsonian Inst. for 1860 (1861), 437 (Pennsylvania).—SCLATER, Cat. Am. Birds, 1862, 14 (North Carolina).—HAYDEN, Trans. Am. Philos. Soc., xii, 1862, 164 (St. Joseph, Missouri).—DRESSER, Ibis, 1865, 485 (Medina R., near San Antonio, Texas, Apr.).—LAWRENCE, Ann. Lyc. N. Y., viii, 1866, 283 (vicinity New York City).—GREGG, Proc. Elmira Acad., 1870 (Chemung Co., New York).—ALLEN, Bull. Mus. Comp. Zool., ii, 1871, 261 (e. Florida, winter); iii, 1872, 125 (Topeka, Kansas).—TRIPPE, Proc. Bost. Soc. N. H., xv, 1872, 236 (Decatur and Mahaska counties, s. Iowa, resident).—MAYNARD, Birds Florida, 1872, 32.—COUES, Check List, 1873, no. 27; 2d ed., 1882, no. 40; Birds N. W., 1874, 19; Birds Col. Val., 1878, 113 (synonymy).—SNOW, Birds Kansas, 1873, 6 (e. Kansas, resident).—TRIPPE, Proc. Essex Inst., xv, 1873, 236 (Iowa).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 87, pl. 6, fig. 1.—BREWSTER, Ann. Lyc. N. Y., xi, 1875, 133 (Ritchie Co., West Virginia; habits; notes); Bull. Nutt. Orn. Club, iii, 1878, 19 (descr. young).—MERRIAM, Trans. Conn. Acad., iv, 1877,

- 9 (Connecticut).—LANGDON, Birds Cincinnati, 1877, 4 (resident).—BREWER, Proc. Bos. Soc. Nat. Hist., xix, 1878, 302 (Lyme and Hartford, Connecticut).—BICKNELL, Bull. Nutt. Orn. Club, iii, 1878, 129 (Riverdale, New York, 1 spec., Nov. 29–Mar. 28).—MEARNS, Bull. Nutt. Orn. Club, iv, 1879, 34 (Riverdale, s. e. New York, rare winter resident).—SCOTT (W. E. D.), Bull. Nutt. Orn. Club, iv, 1879, 81 (Princeton, New Jersey, Jan.), 223 (Long Beach, New Jersey).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 36.—NEHRLING, Bull. Nutt. Orn. Club, vii, 1882, 8 (Harris Co., Texas, resident).—MORAN, Bull. Nutt. Orn. Club, vii, 1882, 52 (Staten I., New York).—AGERSBORG, Auk, ii, 1885, 277 (Dakota Co., Nebraska, abundant).—BUTLER, Birds Indiana, 1897, 1134 (whole State, but rare and irregular in extreme northern counties).
- [*Lophophanes*] *bicolor* COUES, Key N. Am. Birds, 1872, 80.
- [*Lophophanes*] *bicolor* NELSON, Bull. Essex Inst., viii, 1876, 95 (n. e. Illinois, winter straggler); ix, 1877, 33 (Wabash Co., Illinois, very numerous).—COUES, Key N. Am. Birds, 2d ed., 1884, 264.
- [*Baeolophus*] *bicolor* CABANIS, Mus. Hein., i, 1850, 91, footnote.
- [*Parus*] (*Baeolophus*) *bicolor bicolor* HELLMAYR, Tierreich, 18 Lief., Mar., 1903, 42.
- Lophophanes missouriensis* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 384, in text (Fort Leavenworth, Kansas; coll. U. S. Nat. Mus.).
- [*Lophophanes bicolor*] var. *missouriensis* BAIRD, Review Am. Birds, 1864, 78, in text (under list of specimens).
- Parus (Lophophanes) bicolor floridanus* BANGS, Auk, xv, Apr., 1898, 181 (Clear Water, Hillsboro Co., Florida; coll. E. A. and O. Bangs).
- [*Parus*] (*Baeolophus*) *bicolor floridanus* HELLMAYR, Tierreich, 18 Lief., Mar., 1903, 42.

BÆOLOPHUS ATRICRISTATUS ATRICRISTATUS (Cassin).

BLACK-CRESTED TITMOUSE.

Adult male.—Forehead dull white, sometimes faintly tinged with brown; rest of pileum, including crest, black, sharply defined against whitish of forehead; rest of upper parts, including sides of occiput and superciliary region, plain gray, strongly washed with olive, except on superciliary region, where the gray is paler, gradually fading into still paler gray on auricular region and sides of neck, and this fading into white or grayish white on lores and malar region; upper eyelid mostly black; under parts grayish white, becoming clearer buffy white posteriorly, the sides and flanks pale cinnamon-rufous; bill black; iris brown; legs and feet dusky (bluish gray in life); length (skins), 122.5–142 (132.1); wing, 67.5–74 (71.2); tail, 56.5–66 (61.6); culmen, 9–10.5 (9.4); tarsus, 18–20.5 (19.6); middle toe, 11.5–13 (12.4).^a

Adult female.—Similar to the adult male and often not distinguishable, but usually slightly smaller, with black of crest sometimes appreciably less intense; length (skins), 122.5–135.5 (130.1); wing,

^a Twenty-two specimens.

65.5–71.5 (69); tail, 55.5–63.5 (59.9); culmen, 9–10 (9.4); tarsus, 18–19.5 (18.7); middle toe, 11.5–13 (11.9).^a

Young.—Essentially like adults, but black of crown and crest much duller (the feathers often narrowly tipped with grayish), less sharply defined laterally and posteriorly against the gray, and anteriorly invading the forehead almost (sometimes quite) to base of culmen; throat and chest pale gray; color of sides and flanks much paler (cinnamon-buff instead of rufous-cinnamon); back sometimes suffused with sooty or blackish.

Rio Grande Valley, and Mexican States of Coahuila, Nuevo Leon, Tamaulipas, San Luis Potosi, and Vera Cruz (highlands).

Parus atricristatus CASSIN, Proc. Ac. Nat. Sci. Phila., v, 1850, 103, pl. 2 (Rio Grande, Texas; coll. Acad. Nat. Sci. Phila.).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 31, part (Mexico, s. to Vera Cruz).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 732, part.—SENNETT, Auk, iv, 1887, 28 (descr. young).—COOKE, Bird Migr. Miss. Val., 1888, 277, part (Rio Grande Valley).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 455, part.

P[arus] atricristatus RIDGWAY, Man. N. Am. Birds, 1887, 561, part.

P[arus] (B[aeolophus]) atricristatus HELLMAYR, Tierreich, 18 Lief., Mar., 1903, 43, part.

Lophophanes atricristatus BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 332 (Rio Grande, Texas); Rep. Pacific R. R. Surv., ix, 1858, 385; Cat. N. Am. Birds, 1859, no. 286; Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 14 (China, etc., Nuevo Leon, Mexico); Review Am. Birds, 1864, 78, part.—CASSIN, Illustr. Birds Cal., Tex., etc., 1853, 13, part.—BUTCHER, Proc. Ac. Nat. Sci. Phila., 1868, 149 (Laredo, Texas).—COOPER, Orn. Cal., 1870, 43 (Rio Grande Valley).—HEERMANN, Rep. Pacific R. R. Surv., x, no. 1, 1859, 12 (Fort Clark, Texas; habits).—SCLATER, Proc. Zool. Soc. Lond., 1865, 397 (Vera Cruz, Mexico).—COUES, Check List, 1873, no. 29, part.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 90, part.—MERRILL (J. C.), Proc. U.

^a Ten specimens.

Specimens from separate geographic areas average, respectively, as follows:

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Middle toe.
MALES.					
Nine adult males from Lower Rio Grande (Brownsville) ..	70.8	61.9	9.2	19.8	12.7
Eight adult males from Nuevo Leon.....	72.7	62.9	9.8	19.4	12.1
Five adult males from Vera Cruz, San Luis Potosi, and southern Tamaulipas	69.5	58.3	9.2	19.6	12.5
FEMALES.					
Four adult females from Lower Rio Grande (Brownsville)..	69	59.7	9.1	19	12
Five adult females from Nuevo Leon.....	69.8	61.1	9.5	18.6	11.9
One adult female from San Luis Potosi.....	65.5	55.5	10	18.5	11.5

Specimens from Mexico average very slightly more olivaceous above than those from the Rio Grande Valley, but the difference is too slight and inconstant to warrant separation.

S. Nat. Mus., i, 1878, 120 (Fort Brown, Texas; descr. nest and eggs).—SALVIN and GODMAN, Biol. Centr. Am., Aves, i, 1879, 55 (Rio Grande Valley to Vera Cruz).

[*Lophophanes*] *atrocristatus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 5.

Lophophanes atrocristatus COUES, Birds Col. Val., 1878, 116, footnote, part; Check List, 2d ed., 1882, no. 42, part.—SENNETT, Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 6 (Brownsville and Hidalgo, Texas); v, 1879, 378 (Lomita, Texas).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 37, part.

L[ophophanes] atrocristatus COUES, Key N. Am. Birds, 2d ed., 1884, 265, part.

***BÆOLOPHUS ATRICRISTATUS SENNETTI*, new subspecies.^a**

SENNETT'S TITMOUSE.

Similar to *B. a. atricristatus*, but decidedly larger; upper parts much clearer gray, with little, if any, olive tinge; adult female with crest feathers more often and more extensively tipped with gray, and both sexes with forehead more often tinged with brown or rusty, sometimes deeply so.^b

Adult male.—Length (skins), 137–148 (142.2); wing, 75–79.5 (77.1);

^a Type, no. 112939, coll. U. S. Nat. Mus., adult male, Leon Springs, Bexar County, Texas, March 18, 1887; C. W. Beckham.

^b Any pronounced rusty tinge to the color of the forehead indicates, in the writer's opinion, admixture of *B. bicolor* blood. This reaches its extreme development in individuals corresponding to *Parus atricristatus castaneifrons* Sennett and *P. bicolor texensis* Sennett, the former comprising those with a black crown and crest and deep rusty or chestnut forehead, the latter those with a gray crown and crest and rusty or chestnut forehead. That these are all merely hybrids between *B. atricristatus sennetti* and *B. bicolor* is almost certain from the fact that they occur together in the same localities along with the two hypothetical parent species; furthermore, the National Museum collection contains two pairs, shot at San Antonio, by Mr. H. P. Attwater, the males of which are typical *B. a. sennetti* and the females *B. b. texensis*. The synonymy and characters of the two alleged forms are as follows:

***Bæolophus atricristatus castaneifrons* (Sennett).**

Parus atricristatus castaneifrons Sennett, Auk, iv, Jan., 1887, 28 (Bee Co., Texas; coll. G. B. Sennett).—Ridgway, Man. N. Am. Birds, 1887, 594.—Chapman, Auk, v, 1888, 400.—Cooke, Bird Migr. Miss. Val., 1888, 277.

P[arus] atricristatus castaneifrons Ridgway, Man. N. Am. Birds, 1887, 561.

Similar to *B. a. sennetti*, but forehead deep rusty brown or chestnut, and black of crown and crest duller, sometimes intermixed with gray.

***Bæolophus bicolor texensis* Sennett.**

Parus bicolor texensis Sennett, Auk, iv, Jan., 1887, 29 (Bee Co., Texas; coll. G. B. Sennett).—Ridgway, Man. N. Am. Birds, 1887, 593.—Chapman, Auk, v, 1888, 400; Bull. Am. Mus. N. H., iii, 1891, 327 (Corpus Christi).—Attwater, Auk, ix, 1892, 342 (San Antonio, winter).—Cooke, Bird Migr. Miss. Val., 1888, 277.—American Ornithologists' Union, Check List, 2d ed., 1895, no. 731a.—Carroll, Auk, xvii, 1900, 348 (Refugio Co.).

P[arus] bicolor texensis Ridgway, Man. N. Am. Birds, 1887, 561.

P[arus] (B[æolophus]) bicolor texensis Hellmayr, Tierreich, 18 Lief., Mar., 1903, 42.

Similar to *B. a. castaneifrons*, but crown and crest wholly gray or but slightly

tail, 64.5–68.5 (66.9); culmen, 10–11.5 (10.7); tarsus, 19.5–21 (20.5); middle toe, 12.5–14 (13.3).^a

Adult female.—Length (skins), 133–142 (138.4); wing, 70–76 (72.7); tail, 61–69 (64.5); culmen, 9.5–11 (10.1); tarsus, 18.5–20 (19.6); middle toe, 12–13 (12.5).^b

Central Texas, east to the valley of the Brazos River (Young County to Harris County), south to Nueces^c and Bee^c counties, west to Concho and Tom Green counties, north to Young County (possibly to the Red River).^d

Lophophanes atricristatus (not *Parus atricristatus* Cassin, 1850) CASSIN, Illustr. Birds Cal., Tex., etc., 1853, 13, part, pl. 3.—WOODHOUSE, in Sitgreaves's Expl. Zuffi and Col. R., 1853, 69 (near San Antonio, Texas, etc.).—BAIRD, Review, Am. Birds, 1864, 78, part (San Antonio).—DRESSER, Ibis, 1865, 485 (San Antonio and Houston, Texas).—COUES, Check List, 1873, no. 29, part.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 90, part, pl. 6, fig. 2.—BREWSTER, Bull. Nutt. Orn. Club, iv, 1879, 76 (Comal Co., Texas; descr. nest and eggs).

Parus atricristatus (not of Cassin) AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 732, part.—LLOYD, Auk, iv, 1887, 298 (Tom Green and Concho counties; resident).—COOKE, Bird Migr. Miss. Val., 1888, 277, part (Concho, Tom Green, Comal, and Kendall counties, Texas).—BECKHAM, Proc. U. S. Nat. Mus., x, 1888, 692 (San Antonio, Leon Springs, and Beeville, Texas).—HASBROUCK, Auk, vi, 1889, 241 (Eastland Co., Texas).—CHAPMAN, Bull. Am. Mus. N. H., iii, 1891, 327 (Corpus Christi, Texas, breeding).—ATTWATER, Auk, ix, 1892, 343 (San Antonio, Texas, resident; food; location of nest, etc.).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 455, part.

Lophophanes atrocristatus COUES, Birds Col. Val., 1878, 116, footnote, part; Check List, 2d ed., 1882, no. 42, part.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 37, part.—RAGSDALE, Bull. Nut. Orn. Club, vi, 1881, 114 (Texas range).—BROWN (N. C.), Bull. Nut. Orn. Club, vii, 1882, 35 (Boerne, Kendall Co., Texas, resident).

L[ophophanes] atrocristatus COUES, Key N. Am. Birds, 2d ed., 1884, 265, part.

P[arus] (B[aeolophus]) atrocristatus HELLMAYR, Tierreich, 18 Lief., Mar., 1903, 43, part.

BÆOLOPHUS INORNATUS INORNATUS (Gambel).

PLAIN TITMOUSE.

Adults (sexes alike).—Above plain hair brown or light grayish brown, becoming more distinctly brown and slightly olivaceous posteriorly, especially on edges of rectrices; sides of head and under

tinged with blackish; similar to *B. bicolor*, but forehead rusty brown or chestnut instead of black.

The *castaneifrons* type is connected with purely typical *atricristatus sennelli* on the one hand and with the *texensis* type on the other, and the latter is similarly connected with *B. bicolor*.

^a Ten specimens.

^b Nine specimens.

^c I have not seen specimens from these two counties; possibly they may be referable to the Rio Grande form (true *B. atricristatus*).

^d According to Ragsdale (Bull. Nutt. Orn. Club, vi, 1881, 114).

parts very pale brownish gray or dull grayish white, more buffy grayish on sides, flanks, and under tail-coverts; auricular region more or less barred or mottled with darker brownish gray; bill dusky horn color (more grayish in life), with paler tomia; iris brown; legs and feet dusky (bluish gray in life).

Young.—Similar in coloration to adults, but larger wing-coverts, indistinctly paler and somewhat buffy at tips, and texture of plumage distinctly different.

Adult male.—Length (skins), 121–131 (127.2); wing, 66.5–71.5 (68.7); tail, 54–59 (57.1); culmen, 10.5–11.5 (11.2); tarsus, 20.5–21.5 (21.1); middle toe, 12–13.5 (12.9).^a

Adult female.—Length (skins), 110–135 (124.9); wing, 63–70 (67.8); tail, 50–60.5 (55.8); culmen, 10.5–12 (11.1); tarsus, 19.5–22 (20.5); middle toe, 12–13 (12.4).^b

California in general (in oak woods) north of San Bernardino Mountains and Colorado Desert; north to Mendocino and Siskiyou counties; south to Santa Barbara, Ventura, and Kern counties;^a east to western slope of Sierra Nevada.

Parus inornatus GAMBEL, Proc. Ac. Nat. Sci. Phila., ii, Aug., 1845, 265 (near Monterey, California); iii, 1846, 154; Journ. Ac. Nat. Sci., 2d ser., i, 1847, pl. 8, fig. 2.—GADOW, Cat. Birds Brit. Mus., viii, 1883, 32, part (California).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 733, part.—TOWNSEND (C. H.), Proc. U. S. Nat. Mus., x, 1887, 228 (Red Bluff, etc., n. California; descr. nest).—FISHER (A. K.), North Am. Fauna, no. 7, 1893, 138 (Cajon Pass, Walkers Basin, etc., California).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 456.

P[arus] inornatus GAMBEL, Journ. Ac. Nat. Sci. Phila., i, 1847, 35, (near Monterey).—RIDGWAY, Man. N. Am. Birds, 1887, 561.

Parus inornatus inornatus GRINNELL (J.), Pacific Coast Avifauna, no. 3, June 25, 1902, 70, part.

Lophophanes inornatus BAIRD, in Stansbury's Rep. Great Salt Lake, 1852, 332 (California); Rep. Pacific R. R. Surv., ix, 1858, 386, part (Californian localities); Cat. N. Am. Birds, 1859, no. 287, part; Review Am. Birds, 1864, 78, part (Californian localities).—CASSIN, Illustr. Birds Cal., Tex., etc., 1853, 19.—HEERMANN, Journ. Ac. Nat. Sci. Phila., 2d ser., ii, 1853, 263 (at least in part); Rep. Pacific R. R. Surv., x, pt. iv, 1859, 42 (California).—XANTUS, Proc. Ac. Nat. Sci. Phila., xi, 1859, 191 (Fort Tejon, California).—SLATER, Cat. Am. Birds, 1862, 14 (Sacramento, California).—COOPER, Orn. Cal., 1870, 42, part.—RIDGWAY, Bull. Essex Inst., v, 1873, 189, part (crit.); Nom. N. Am. Birds, 1881, 38, part.—COUES, Check List, 1873, no. 28, part; 2d ed., 1882, no. 41, part; Birds N. W., 1874, 20, part (in synonymy); Birds Col. Val., 1878, 114, part.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 91, part, pl. 6, fig. 3.—HENSHAW, Am. Rep. U. S. Geol. Surv. W. 100th Merid., 1875, 229 (Santa Barbara (Fort Tejon, Walkers Basin, etc., California).—COOPER (W. A.), Bull. Nutt Orn. Club, iii, 1878, 68, 69 (Santa Cruz, California; breeding habits).—BREWSTER, Bull. Nutt. Orn. Club, iv, 1879, 39 (Oakdale, Stanislaus Co., California; descr. young).—BELDING, Proc. U. S. Nat. Mus., i, 1879, 400 (Stockton, Calaveras Co., etc.; descr. nest and eggs).

^a Ten specimens.

^b Also northern portion of Los Angeles County.

[*Lophophanes*] *inornatus* COUES, Key N. Am. Birds, 1872, 80, part.

L[ophophanes] inornatus COUES, Key N. Am. Birds, 2d ed., 1884, 264, part.

[*Lophophanes inornatus*.] Var. *inornatus* RIDGWAY, Proc. U. S. Nat. Mus., v, 1882, 344 (diagnosis).

P[arus] (B[aeolophus]) inornatus inornatus HELLMAYR, Tierreich, 18 Lief., Mar., 1903, 43, part.

BÆOLOPHUS INORNATUS RESTRICTUS, new subspecies.^a

SAN FRANCISCO TITMOUSE.

Similar in size to *B. i. inornatus*, but decidedly darker, the young conspicuously less brown.

Adult male.—Length (skin), 126.5; wing, 68; tail, 57; culmen, 11.5; tarsus, 20.5; middle toe, 12.5.^b

Adult female.—Length (skin), 125; wing, 66; tail, 56; culmen, 11; tarsus, 20; middle toe, 13.^b

San Francisco Bay district, California (Oakland).

Lophophanes inornatus (not *Parus inornatus* Gambel) COOPER, Orn. Cal., 1870, 42, part (San Francisco, California).—HENSHAW, Bull. Nutt. Orn. Club, iv, 1879, 182 (Oakland, California; breeding habits; descr. nest and eggs).

Parus inornatus inornatus GRINNELL (J.), Pacific Coast Avifauna, no. 3, June 25, 1902, 70, part.

Parus inornatus (not of Gambel) BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 456, part.

P[arus] (B[aeolophus]) inornatus inornatus HELLMAYR, Tierreich, 18 Lief., March, 1903, 43, part.

BÆOLOPHUS INORNATUS MURINUS, new subspecies.^c

SAN DIEGO TITMOUSE.

Similar to *B. i. inornatus*, but larger; upper parts much grayer, and under parts darker, more decidedly gray. Similar to *B. i. griseus*, but decidedly darker.

Adult male.—Length (skins), 122–143 (131.9); wing, 68–75.5 (70.8); tail, 57–63 (59.4); culmen, 11–13 (11.9); tarsus, 21–22.5 (21.7); middle toe, 12.5–13.5 (12.9).^d

Adult female.—Length (skins), 118–137 (129.1); wing, 66–72 (69.3); tail, 57–61 (59.2); culmen, 12–12.5 (12.2); tarsus, 20.5–22.5 (21.4); middle toe, 13–14 (13.1).^e

Southern California, in Los Angeles, San Bernardino, and San Diego counties, and northern Lower California (Nachoguero Valley, San Pedro Martir Mountains, etc.).

^a Type, no. 163569, coll. U. S. Nat. Mus., adult male, Oakland, California, March 24, 1896; Dr. Hornung.

^b One specimen.

^c Type, no. 133812, coll. U. S. Nat. Mus., adult male, Nachoguero Valley, Lower California, June 4, 1894; Dr. E. A. Mearns, U. S. A.

^d Fifteen specimens.

^e Seven specimens.

- Lophophanes inornatus* (not *Parus inornatus* Gambel) COOPER, Orn. Cal., 1870, 42 part (near San Diego, California).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 91, part.
- [*Lophophanes*] *inornatus* COUES, Key N. Am. Birds, 1872, 80, part.
- Lophophanes* *inornatus* COUES, Key N. Am. Birds, 2d ed., 1884, 284, part.
- Parus inornatus* AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 733, part.—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 456, part.
- (?) *Parus inornatus* (not of Gambel?) MORCOM, Bull. Ridgway Orn. Club, no. 2, 1887, 55 (San Geronio and Cajon Pass, s. California.—GRINNELL (J.), Pub. ii, Pasadena Ac. Sci., 1898, 49 (Los Angeles Co., California, resident).
- Parus inornatus inornatus* GRINNELL (J.), Pacific Coast Avifauna, no. 3, June 25, 1902, 70, part.
- Parus inornatus griseus* (not *Lophophanes inornatus griseus* Ridgway, 1887) ANTHONY, Zoe, iv, 1893, 246 (San Pedro Martir Mountains, Lower California).
- Parus inornatus* EMERSON, Bull. 7, Calif. Ac. Sci., 1887, 424 (San Diego Co., California).
- P[arus] (B[aeolophus]) inornatus inornatus* HELLMAYR, Tierreich, 18 Lief., March 1903, 43, part.

BÆOLOPHUS INORNATUS GRISEUS (Ridgway).

GRAY TITMOUSE.

Similar to *L. i. murinus*, but paler and grayer, the upper parts drab-gray or smoke gray; wing and tail longer, and bill larger.

Adult male.—Length (skins), 123.5–135 (131.6); wing, 70–75 (72.2); tail, 54.5–62.5 (59.6); culmen, 12.5–14 (12.9); tarsus, 20.5–22.5 (21.5); middle toe, 12–13 (12.3).^a

Adult female.—Length (skins), 122–131.5 (127.9); wing, 69–73.5 (70.1); tail, 55.5–60 (57.1); culmen, 12–13.5 (12.6); tarsus, 19.5–21 (20.6); middle toe, 11–12 (11.8).^b

Mountains of the arid interior districts of western United States; north to Nevada (Washoe and Storey counties), Utah (Beaver County), and Colorado (El Paso and Fremont counties); east to western Texas (Guadalupe Mountains); west to eastern base of Sierra Nevada and southeastern California (Panamint Mountains); south to Mexican boundary line in New Mexico and Arizona, probably into northern Chihuahua and Sonora.

- Lophophanes inornatus* (not *Parus inornatus* Gambel) WOODHOUSE, in Rep. Sitgreaves' Expl. Zuni and Col. R., 1853, 69 (San Francisco Mt., Arizona).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 386, part (Mimbres to Rio Grande, New Mexico); Cat. N. Am. Birds, 1859, no. 287, part; Review Am. Birds, 1864, 78, part (San Francisco Mts., Arizona; Fort Defiance and Fort Thora, New Mexico).—COUES, Proc. Ac. Nat. Sci. Phila., xviii, 1866, 79 (Fort Whipple, Arizona); Check List, 1873, no. 28, part; 2d ed., 1882, no. 41, part; Birds N. W., 1874, 20, part; Birds Col. Val., 1878, 114, part.—COOPER, Orn. Cal., 1870, 42, part (New Mexico).—AIKEN, Proc. Bost. Soc. N. H., xv, 1872, 135 (Colorado).—RIDGWAY, Bull. Essex Inst., v, 1873, 179 (Colorado), 189, part (crit.); vii, 1875, 12 (Carson City, Nevada); Field and Forest, iii, 1877, 194 (Colorado); Orn. 40th Parallel, 1877, 410, excl. syn., part (e. slope Sierra Nevada).

^aTen specimens.

^bNine specimens.

- Nevada, near Carson City and Truckee R.); Nom. N. Am. Birds, 1881, no. 38, part.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 91, part; iii, 1874, 502 (El Paso Co., Colorado).—YARROW and HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 7 (Iron City and Beaver, Utah).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 40 (Utah, resident), 99, 155 (s. Arizona); Zool. Exp. W. 100th Merid., 1875, 167 (Iron City, Beaver, and Cove Creek, Utah; Colorado; New Mexico; Arizona; habits); Ann. Rep. Geol. Surv. W. 100th Merid., 1877, 1315 (Carson City, Nevada).—HOFFMAN, Bull. U. S. Geol. and Geog. Surv. Terr., vi, no. 2, 1881, 212 (Nevada).—DREW, Bull. Nutt. Orn. Club, vi, 1881, 87 (Colorado).—BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 79 (Chiricahua Mts., s. Arizona).
- L[ophophanes] inornatus* COUES, Ibis, 1865, 164, in text (Fort Whipple, Arizona); Key N. Am. Birds, 2d ed., 1884, 264, part.—HENSHAW, Ann. Rep. U. S. Geol. Surv. W. 100th Merid., 1879, 288 (Nevada).
- Tophophanes* (typographical error) *inornatus* BAIRD, in Ives' Rep. Col. R., pt. v, 1861, 6 (Fort Defiance, New Mexico).
- Parus bicolor* (not of Linnæus) HENRY, Proc. Ac. Nat. Sci. Phila., vii, 1855, 309 (New Mexico).
- Lophophanes bicolor* (not of Bonaparte) HENRY, Proc. Ac. Nat. Sci. Phila., xi, 1859, 107 (New Mexico).
- Lophophanes inornatus griseus* (not *Parus griseus* Müller, 1776) RIDGWAY, Proc. U. S. Nat. Mus., v, Sept. 5, 1882, 344 (Iron City, s. Utah; coll. U. S. Nat. Mus.); Bull. Nutt. Orn. Club, vii, 1882, 257.—REICHENOW and SCHALOW, Journ. für Orn., 1884, 421 (reprint of orig. descr.).
- [*Lophophanes inornatus*] Var. *griseus* RIDGWAY, Proc. U. S. Nat. Mus., v, 1882, 344.
- Parus inornatus griseus* RIDGWAY, Proc. U. S. Nat. Mus., viii, Sept. 2, 1885, 354.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 733a.—FISHER (A. K.), North Am. Fauna, no. 7, 1893, 138 (Panamint Mts., s. e. California; Charleston Mts., s. w. Nevada).—LOWE, Auk, xi, 1894, 270 (Wet Mts., Colorado, 8,000 ft.).—COOKE, Bull. 37, Col. State Agric. Coll., 1897, 122 (s. Colorado, n. to El Paso Co.; 5,000–9,000 ft.); Bull. 44, Col. State Agric. Coll., 1898, 169 (Cañon City, Colorado, resident).—WILSON (S. S.), Auk, xvi, 1899, 189 (San Miguel Co., New Mexico).—OBERHOLSER, Auk, xix, 1902, 301 (Guadalupe Mts., w. Texas).—GRINNELL (J.), Pacific Coast Avifauna, no. 3, 1902, 70 (s. e. California, e. of Sierra Nevada).
- P[arus] inornatus griseus* RIDGWAY, Man. N. Am. Birds, 1887, 562.
- P[arus] i[nornatus] griseus* BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 456.
- Parus inornatus ridgwayi* RICHMOND, Proc. Biol. Soc. Wash., xv, June 20, 1902, 155 (to replace *Lophophanes inornatus griseus* Ridgway, on ground of pre-occupation^a).
- P[arus] (B[aeolophus]) inornatus ridgwayi* HELLMAYER, Tierreich, 18. Lief., Mar. 1903, 43.

BÆOLOPHUS INORNATUS CINERACEUS (Ridgway).

ASHY TITMOUSE.

Similar in coloration of upper parts to *B. i. griseus*, but under parts much paler, and size slightly smaller.

Adult male.—Length (skins), 121–129 (124.6); wing, 69–74.5 (71.4);

^a *Parus griseus* Müller, Zool. Dan., 1776, 34. The present species being removed from the genus *Parus*, the proposed change of name becomes, of course, unnecessary.

tail, 55.5–58 (56.5); culmen, 11–12 (11.4); tarsus, 18–21 (19.9); middle toe, 12–13.5 (13).^a

Adult female.—Length (skins), 118.5–126 (122.5); wing, 66–70 (68.2); tail, 52–56.5 (54.9); culmen, 11–12 (11.6); tarsus, 18.5–20 (19.1); middle toe, 12–13.5 (12.6).^a

Cape St. Lucas district of Lower California (Sierra de la Laguna; Victoria Mountains).

Lophophanes inornatus cineraceus RIDGWAY, Proc. U. S. Nat. Mus., vi, Oct. 5, 1883, 154 (Laguna, Lower California; coll. U. S. Nat. Mus.), 347 (Victoria Mts., Lower California).—REICHENOW and SCHALOW, Journ. für Orn., 1886, 438 (reprint of orig. descr.).

Parus inornatus cineraceus RIDGWAY, Proc. U. S. Nat. Mus., viii, Sept. 2, 1885, 354.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 733b.—BREWER, Bull. Mus. Comp. Zool., xli, 1902, 204 (Sierra de la Laguna, Lower California; crit.).

P[arus] inornatus cineraceus RIDGWAY, Man. N. Am. Birds, 1887, 561.

P[arus] (B[aeolophus]) inornatus cineraceus HELLMAYR, Tierreich, 18. Lief., Mar. 1903, 43.

BÆOLOPHUS WOLLWEBERI WOLLWEBERI (Bonaparte).

WOLLWEBER'S TITMOUSE.

Adults (sexes alike).—Pileum, including crest, black, with a large central patch of deep gray covering whole crown; a broad and sharply defined superciliary stripe of white extending posteriorly to beneath hind part of crest, where confluent with a broad white band across side of neck; a postocular streak of black, broader posteriorly, where confluent with a black band across terminal portion of auricular region; rest of auricular region, together with suborbital and malar regions, white; a black spot or short streak at anterior angle of eye; chin and throat uniform black, forming a conspicuous patch with sharply defined posterior outline; upper parts (except as described) plain deep olive-gray, more strongly tinged with olive posteriorly; under parts of body pale olive-gray, passing into pale olive-buffy on abdomen and under tail coverts; bill black; iris brown; legs and feet dusky (bluish gray in life).

Adult male.—Length (skin), 117.5; wing, 67; tail, 56; culmen, 9; tarsus, 17; middle toe, 10.5.^b

Adult female.—Length (skins), 114–116 (115); wing, 64–64.5 (64.2); tail, 55–57 (56); culmen, 8–9 (8.5); tarsus, 16.5–17 (16.7); middle toe, 9.5–10.5 (10).^c

Young.—Similar to adults, but throat mostly grayish or largely intermixed with gray, only the chin being uniform black.

^a Ten specimens.

^b One specimen, from Talpa, Jalisco.

^c Two specimens, from Talpa and Jacala, Jalisco.

Highlands of Mexico, in States of Oaxaca (La Parada; Talea), Puebla (Chachapa), Vera Cruz (Orizaba, etc.), and northward to Zacatecas.

Lophophanes wollweberi BONAPARTE, Compt. Rend., xxxi, Oct., 1850, 478 (Zacatecas, Mexico; coll. Darmstadt Mus.).—CASSIN, Illustr. Birds Cal., Tex., etc., 1853, 19, part.—SCLATER, Proc. Zool. Soc. Lond., 1858, 299 (La Parada Oaxaca); 1859, 373 (Talea, Oaxaca); 1865, 397 (Vera Cruz); Cat. Am. Birds, 1862, 14 (Talea, Oaxaca).—BAIRD, Review Am. Birds, 1864, 79, part (Mexico).—SUMICHRIST, Mem. Bost. Soc. N. H., i, 1869, 544 (alpine reg., Vera Cruz; mountains of San Diego and valley of Orizaba).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 93, part.—COUES, Birds Col. Val., 1878, 117, part (in synonymy).—SALVIN and GODMAN, Biol. Centr. Am., Aves, i, 1879, 56 (La Parada and Talea, Oaxaca; mountains of San Diego; Orizaba, Tierra Fria).

[*Lophophanes*] *wollweberi* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 5.

Parus (*Lophophanes*) *wollweberi* WESTERMANN, Bijdr. Dierk, iii, 1851, 15, plate.

Parus wollweberi AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 734, part.—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 135 (Chachapa, Puebla).—RIDGWAY, Proc. U. S. Nat. Mus., ix, 1886, 135 (Chachapa; crit.).

P[arus] wollweberi RIDGWAY, Man. N. Am. Birds, 1887, 562, part.

P[arus] (*L[ophophanes]*) *wollweberi* HELLMAYR, Tierreich, 18 Lief., Mar., 1903, 46, part.

L[ophophanes] galeatus CABANIS, Mus. Hein., i, 1850, 90, footnote (Mexico; coll. Berlin Mus.; ex *Parus galeatus* Lichtenstein, manuscript).

BÆOLOPHUS WOLLWEBERI ANNEXUS (Cassin).

BRIDLED TITMOUSE.

Similar to *B. w. wollweberi*, but paler; gray of upper parts paler; under parts of body dull grayish white rather than gray, with the olive-buffy tinge to abdomen, etc., paler (almost wholly wanting in summer plumage).

Adult male.—Length (skins), 110–120 (115.3); wing, 63–67.5 (65.1); culmen, 8.5–9.5 (9); tarsus, 15.5–17.5 (16.8); middle toe, 10–11 (10.4).^a

Adult female.—Length (skins), 107–124 (114.7); wing, 60–65 (62.6); tail, 53–59 (55.6); culmen, 8–9 (8.5); tarsus, 15.5–17.5 (16.7); middle toe, 9.5–10.5 (10).^a

Mountains of Arizona (Copper Mines, Fort Whipple, Apache, Rock Cañon, Bowie, Chiricahua Mountains, Pinal Mountains, Santa Catalina Mountains, etc., and New Mexico (Pueblo Creek) and Mexican States of Sonora (Oposura; Napolera; Puerto de los Pinitos) and Chihuahua (Mina Abundancia; Bravo; Carmen; Hacienda San Rafael).

Lophophanes wollweberi (not of Bonaparte) BAIRD, in Stansbury's Rep. Great Salt Lake, 1852, 332 ("Rio Grande, Texas"); Rep. Pacific R. R. Surv., ix, 1858, 386; ed. 1860 (Birds N. Am.), atlas, pl. 53, fig. 1; Rep. U. S. and Mex. Bound. Surv., ii, pt. 2, 1859, 14, pl. 15, fig. 1 (Copper Mines, Arizona); Cat. N. Am. Birds, 1859, no. 288; Review Am. Birds, 1864, 79, part.—CASSIN, Illustr. Birds Cal., Tex., etc., 1853, 19, part.—KENNERLY, Rep. Pacific R. R. Surv., x, pt. vi, 1859, 27 (Pueblo Creek, New Mexico).—HENRY, Proc. Ac. Nat. Sci. Phila., xi, 1859, 107 (New Mexico).—COUES, Ibis, 1865, 164, in text (Fort Whipple, Arizona); Proc. Ac. Nat. Sci. Phila., xviii, 1866, 79

^a Ten specimens.

(Fort Whipple, resident); Check List, 1873, no. 30; 2d. ed., 1882, no. 45. Birds Col. Val., 1878, 117.—COOPER, Orn. Cal., 1870, 43 (Arizona; New Mexico).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 93, part, pl. 6, fig. 4.—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 99 (Apache, Arizona), 155 (Fort Whipple, etc.); Zool. Exp. W. 100th Merid., 1875, 168 (Rock Cañon, Bowie, Camp Crittenden, and Apache, Arizona: habits).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 39.—BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 79 (Chiricahua Mts., Arizona).

[*Lophophanes*] *wollweberi* COUES, Key N. Am. Birds, 1872, 81, part.

[*Lophophanes*] *wollweberi* COUES, Key N. Am. Birds, 2d ed., 1884, 265, part.

Lophophanes wollweberi SCOTT (W. E. D.), Auk, iii, 1886, 84 (Arizona; breeding habits).

Parus wollweberi HENRY, Proc. Ac. Nat. Sci. Phila., vii, 1855, 309 (New Mexico).—

AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 734, part.—JOY, Proc. U. S. Nat. Mus., xvi, 1884, 776 (32 miles s. of Nogales, Sonora).—SCOTT, W. E. D.), Auk, v, 1888, 166 (Pinal and Santa Catalina Mts., Arizona, in evergreen oak belt).—ALLEN, Bull. Am. Mus. N. H., v, 1893, 41 (Puerto de los Pinitos and Napolera, Sonora).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 457.

[*Parus*] *wollweberi* RIDGWAY, Man. N. Am. Birds, 1887, 562.

[*Parus*] (*Lophophanes*) *wollweberi* HELLMAYR, Tierreich, 18 Lief., Mar. 1903, 46, part.

Parus annexus CASSIN, Proc. Ac. Nat. Sci. Phila., v, Oct., 1850, 103, pl. 1 ("Rio Grande, Texas").^a

Genus PENTHESTES Reichenbach.

Pœcile (not *Pœcilus* Bonelli, 1809) KAUP, Entw. Eur. Thierw., 1829, 114. (Type, *Parus palustris* Linnæus.)

Pœcila (emendation) GRAY, Gen. Birds, i, 1848, 191.—BONAPARTE, Consp. Av., i, 1850, 230.

Pœcila (emendation) BONAPARTE, Ann. Sci. Nat., ser. 4, i, 1854, 121.

Poikilis (emendation) BLASIUS, List Birds Eur., 1862, 8.

Pœcilia (emendation; not of Schranck, 1802, nor Heinemann, 1870) TACZANOWSKI, Journ. für Orn., 1872, 443.

Pœcilia (emendation; not of Bloch-Schneider, 1801) DYBOWSKI, Bull. Soc. Zool. France, viii, 1883, 361.

Penthestes REICHENBACH, Av. Syst. Nat. Trepidat., March 1, 1850, pl. 62. (Type, *Parus lugubris* Temminck.)

Phaeopharus MADARÁSZ, Magyar. Mad., 1900, 139. (Type, *Parus palustris* Linnæus.)

Similar to *Bæolophus* but without crest, the bill more slender, and general form less stout; throat always black (at least in part) or deep sooty brown; pileum and hindneck always uniform black or brown.

Coloration.—Above plain gray or brown (one species deep rusty or chestnut) with the pileum and hindneck uniform black or brown, the larger wing-feathers, especially the tertials, sometimes conspicuously edged with whitish; beneath white medially, becoming more or less buffy, grayish, brown or chestnut on sides and flanks, the throat always black (at least in part) or sooty brown.

^aThe locality where the type was actually taken is extremely doubtful, but almost certainly was not any part of the Rio Grande Valley or Texas. I have examined the original specimen and find it to represent the northern form.

Range.—Northern portions of Palaearctic Region and entire Nearctic Region. (About twelve species.)

In structural characters *Penthestes* is quite similar to *Bæolophus* except that the species are all of more slender build, the bill and feet especially, and there is no trace of crest, the feathers of the pileum, although rather long, being of uniform length and blended. In coloration the species of this group much more nearly resemble those of *Bæolophus* than any of the peculiarly Palaearctic groups (*Parus*, *Cyanistes*, etc.), which are much more brightly colored, with the pattern more varied.

KEY TO THE SPECIES AND SUBSPECIES OF PENTHESTES.

a. Pileum black.

b. No white superciliary streak.

c. Sides and flanks more or less buffy, or else white, very different in color from back.

d. Black of throat with posterior edge much broken by white tips to feathers; greater wing-coverts and secondaries conspicuously edged with white; tail relatively longer (difference between length of tail and length of wing decidedly less than length of culmen). (*Penthestes atricapillus*.)

e. Larger and paler; wing of male averaging 66 or more, of female more than 62; tail of male averaging more than 61, of female more than 58.

f. Smaller and darker, with tail relatively shorter; male averaging wing 66, tail 61.5, female wing 63.3, tail 59.5. (Eastern North America, chiefly north of 40°; area between Cascade and Rocky mountains, in Idaho, Oregon, Washington, and British Columbia.)

Penthestes atricapillus atricapillus (p. 397)

ff. Larger and paler with tail relatively longer; male averaging wing 66.3 or more, tail 65 or more, female wing 64.5 or more, tail 63.7 or more.

g. Gray of back, etc., slightly darker and more buffy, the sides and flanks more strongly buffy; male averaging wing 69.7, tail 67.7, female wing 66.5, tail 64.4. (Rocky Mountain and Great Plains districts, from Kansas and New Mexico to Cook Inlet, Alaska.)

Penthestes atricapillus septentrionalis (p. 399)

gg. Gray of back, etc., slightly paler and purer; the sides and flanks paler buffy, sometimes entirely white. (Alaska, west and north of Cook Inlet.) *Penthestes atricapillus turneri* (p. 402)

ee. Smaller and much darker; male averaging wing 61.9, tail 56.5, female wing 59.5, tail 55. (Pacific coast district, Oregon to British Columbia.)

Penthestes atricapillus occidentalis (p. 402)

dd. Black of throat with posterior edge more "solid," very abruptly defined against white of chest; greater wing-coverts and tertials edged with light gray; tail relatively shorter (difference between length of tail and length of wing much greater than length of culmen). (*Penthestes carolinensis*.)

e. Larger, the back, etc., clearer gray; male wing more than 54, averaging 61.8 in male, 61.2 in female; tail more than 46, averaging 51.9 in male, 53.3 in female.

f. Gray of upper parts slightly darker. (Eastern United States, south of 40°, except eastern Florida, Texas, and southern Indian Territory.)

Penthestes carolinensis carolinensis (p. 403)

ff. Gray of upper parts slightly paler. (Eastern and central Texas and southern Indian Territory) *Penthestes carolinensis agilis* (p. 406)

- ee. Smaller, the back, etc., browner gray; wing 53.5 in male, 52.5 in female; tail 46 in male, 44.5 in female. (Eastern Florida.)
Penthestes carolinensis impiger (p. 406)
- cc. Sides and flanks gray, like back. (Highlands of Mexico, north to southern Arizona.) *Penthestes selateri* (p. 407)
- bb. A white superciliary streak. (Mountain districts of western United States.)
Penthestes gambeli (p. 408)
- aa. Pileum brown.
- b. Back grayish brown; tail 54.5-68.
- c. Sides of neck white; sides and flanks pale wood brown or brownish buff. (*Penthestes cinctus*.)
- d. Darker and browner above; the sides light wood brown or fawn color. (Northern Europe.) *Penthestes cinctus cinctus* (extralimital).^a
- dd. Paler and grayer above; the sides much paler fawn color or cinnamon-buff.
- e. Bill larger (culmen 10). (Eastern Siberia.)
Penthestes cinctus oblectus (extralimital).^b
- ee. Bill smaller (culmen 9-9.5). (Northern Alaska.)
Penthestes cinctus alascoensis (p. 411)
- cc. Sides of neck gray; sides and flanks rusty brown or cinnamon-brown. (*Penthestes hudsonicus*.)
- d. Larger (wing 66 or more in male, 65 or more in female; tail 64 or more in male, more than 63 in female).
- e. Paler and browner above; the throat more sooty. (Labrador to Alaska.)
Penthestes hudsonicus hudsonicus (p. 412)
- ee. Darker and less brown above; the throat blacker. (Northern Rocky Mountain district, from northern Montana to Cook Inlet, Alaska.)
Penthestes hudsonicus columbianus (p. 414)
- dd. Smaller (wing averaging 63.9 in male, 60.8 in female; tail averaging 60.6 in male, 59.1 in female). (Southern Labrador, New Brunswick, Nova Scotia, and northern New England to northern New York.)
Penthestes hudsonicus littoralis (p. 415)
- bb. Back chestnut; tail 43.5-54. (*Penthestes rufescens*.)

^a *Parus cinctus* Boddaert, Tabl. Pl. Enl., 1783, 46 (based on *La Mésange de Sibérie* Daubenton, Pl. Enl., pl. 708, fig. 3); Dresser Birds, Europe, iii, 1871, 112; Gadow, Cat. Birds, Brit. Mus., viii, 1883, 35, part; *Poecila cincta* Prazák, Orn. Jahrb., vi, Heft 2, March-April, 1895, 87 (monogr.).—[*Parus*] *sibiricus* Gmelin, Syst. Nat., i, 1788, 1013 (based on *Siberian Titmouse* Latham, Gen. Synop., ii, 556); [*Poecila*] *sibiricus* Bonaparte, Consp. Av., i, 1850, 230; *P[ocile]* *sibirica* Cabanis, Mus. Hein., i, 1850, 91; *Poecile sibirica vera* Brehm, Naumannia, 1856, 369.—*Parus lapponicus* Lundahl, Notis. Fauna et Flora Fenn. Förh. Helsingf., 1848, pt. i, 1, pl. 1, fig. 1.

^b (?) *Poecila sibmicrorhynchos* Brehm, Naumannia, 1856, 369 (Siberia).—*Parus sibiricus* (not of Gmelin) Radde, Reis. S. O. Sibir., ii, 1861, 198; *Poecila sibirica* Taczanowski, Bull. Soc. Zool. France, i, 1876, 363.—*Poecile cincta* (not *Parus cinctus* Boddaert) Swinhoe, Proc. Zool. Soc. Lond., 1871, 362 (near Pekin, north China); David and Oustalet, Ois. Chine, 1877, 288.—*Parus* (*Poecila*) *oblectus* Cabanis, Journ. für Orn., xix, May, 1871, 237 (Lake Baikal, south Siberia); *Poecilia oblecta* Taczanowski, Journ. für Orn., 1872, 443; *P[arus]* *oblectus* Gadow, Cat. Birds Brit. Mus., viii, 1883, 35, part (synonymy, under *P. cinctus*; excl. syn. *Poecila affinis* Prjevalsky); *Poecila cincta oblecta* Prazák, Orn. Jahrb., vi, Heft 2, March-April, 1895, 90 (monogr.).—(?) *Parus griseescens* Sharpe and Dresser, Birds of Europe, iii, 1871 [129], in text (south shores of Lake Baikal; coll. Sharpe and Dresser); *Parus cinctus* . . . subsp. *griseescens* Seebohm, Ibis, 1879, 2 (Yenesai River, Siberia); *Poecila cincta griseescens* Prazák, Orn. Jahrb., vi, Heft 2, March-April, 1895, 91 (monogr.).—*P[arus]* (*P[ocile]*). *cinctus oblectus* Hellmayr, Tierreich, 18 Lief., March, 1903, 70, part.

- c. Sides and flanks extensively chestnut. (Northern Pacific coast, from northern California to east side of Kenai Peninsula, Alaska.)

Penthestes rufescens rufescens (p. 416)

- cc. Sides and flanks pale brownish-gray with little, if any, chestnut.

- d. Sides and flanks obviously tinged or intermixed with chestnut. (Northern side of San Francisco Bay, in Marin County, California.)

Penthestes rufescens neglectus (p. 418)

- dd. Sides and flanks without any chestnut, or with a very slight tinge of that color. (Coast range south of San Francisco Bay, California.)

Penthestes rufescens barlowi (p. 418)

PENTHESTES ATRICAPILLUS ATRICAPILLUS (Linnaeus).

CHICKADEE.

Adults (sexes alike) in spring and summer.—Entire pileum and hindneck (except lateral portion of the latter) uniform deep black; back, scapulars, middle and lesser wing-coverts plain olive-gray,^a passing into more buffy gray on rump and upper tail-coverts; wings and tail dusky slate color or dull blackish slate; greater wing-coverts and secondaries broadly edged with pale gray or grayish white, the primaries narrowly edged with the same; rectrices edged with light olive-gray, or nearly ash gray, these edgings becoming white on outermost ones; chin and whole throat black, the feathers near posterior margin of this black area more or less conspicuously tipped with white; sides of head and neck white; under parts of body white, the sides and flanks tinged with buff; bill black; iris brown; legs and feet dusky (bluish gray in life).

Adults in autumn and winter.—Similar to the spring and summer plumage but much more richly colored, the gray of back, etc., more buffy, the rump and upper tail-coverts more decidedly buffy, the sides and flanks deep brownish buff, in strong contrast with white of the abdomen, and the whitish edgings of larger wing-coverts, secondaries, and outermost rectrices broader and more conspicuous.

Young.—Similar to summer adults but black of head much duller (entirely without gloss) and texture of plumage much looser.

Adult male.—Length (skins), 119.5–129.5 (124); wing, 63.5–67.5 (66); tail, 58–63 (61.5); culmen, 8–9.5 (9); tarsus, 16–17.5 (16.5); middle toe, 9–10.5 (10.1).^b

Adult female.—Length (skins), 112.5–126 (121.6); wing, 60.5–66.5 (63.3); tail, 56.5–63 (59.5); culmen, 9–9.5 (9.1); tarsus, 16–17 (16.9); middle toe, 9–10.5 (9.8).^b

Northeastern United States and southeastern British Provinces; north to Newfoundland, southern Labrador, Quebec, Ontario, and southern Keewatin (Severn River); south, regularly, to about latitude 40°, in New Jersey, Pennsylvania, Ohio, northern Indiana (south to Tippecanoe, Carroll, and Wayne counties), northern Illinois, Iowa,

^a Much deeper in tone than that of Ridgway's Nomenclature of Colors.

^b Ten specimens.

etc., in Allegheny Mountains to North Carolina (in spruce belt); irregularly (in winter) to northern Virginia, Kentucky, southern Illinois, Missouri, etc.

A separate "colony" inhabits the area between the Rocky Mountains and Cascade Range, in eastern Washington (Walla Walla, Ellensburg, etc.), western Idaho (Lemi, Fort Sherman, etc.) and central British Columbia (Sicamores, Clinton, Ashcroft, etc.)^a

[*Parus*] *atricapillus* LINNÆUS, Syst. Nat., ed. 12, i, 1766, 341 (based on *La Mésange à tete noire de Canada*, *Parus canadensis atricapillus*, Brisson, Orn., iii, 553, pl. 29, fig. 1).—GMELIN, Syst. Nat., i, 1788, 1008.—LATHAM, Index Orn., ii, 1790, 566.—GRAY, Hand-list, i, 1869, 232, no. 3354.—COUES, Key N. Am. Birds, 1872, 81.

Parus atricapillus, FORSTER, Philos. Trans., lxii, 1772, 407 (Fort Albany, Severn R.).—WILSON, Am. Orn., i, 1808, 134, pl. 8, fig. 4.—VIEILLIOT, Enc. Méth., ii, 1823, 508.—BONAPARTE, Journ. Ac. Nat. Sci. Phila., iv, 1825, 254; Ann. Lyc. N. Y., ii, 1826, 100; Geog. and Comp. List., 1838, 20.—LESSON, Man. d'Orn., i, 1828, 320; Traité d'Orn., 1831, 456.—SWAINSON and RICHARDSON, Fauna Bor.-Am., ii, 1831, 226.—NUTTALL, Man. Orn. U. S. and Can., 2d ed., 1841, 260.—AUDUBON, Orn. Biog., iv, 1838, 374, pl. 353, fig. 3; Synopsis, 1839, 79; Birds Am., oct. ed., ii, 1841, 146, pl. 126.—CASSIN, Illustr. Birds California, Texas, etc., 1853, 17.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 390; Cat. N. Am. Birds, 1859, no. 290; Review Am. Birds, 1864, 80.—(?) WOODHOUSE, in Rep. Sitgreaves's Expl. Zuni and Col. R., 1853, 68 (Indian Territory).—SCLATER, Cat. Am. Birds, 1862, 13 (Philadelphia; Montreal).—VERRILL, Proc. Essex Inst., iii, 1862, 150 (Oxford Co., Maine).—BOARDMAN, Proc. Bost. Soc. N. H., ix, 1862, 126 (Calais, Maine).—MCLWRAITH, Proc. Essex Inst., v, 1866, 88 (Hamilton, Ontario).—ALLEN, Mem. Bost. Soc. N. H., i, 1868, 493 (Iowa); Bull. Mus. Comp. Zool., ii, 1871, 261, part (crit.).—TURNBULL, Birds E. Pennsylvania and New Jersey, 1869, 21.—TRIPPE, Proc. Essex Inst., vi, 1871, 115 (Minnesota); Proc. Bost. Soc. N. H., xv, 1872, 236 (Decatur and Mahaska counties, s. Iowa; breeding).—MAYNARD, Proc. Bost. Soc. N. H., xiv, 1871 (New Hampshire).—COUES, Check List, 1873, no. 31; 2d ed., 1882, no. 44; Birds N. W., 1874, 20.—(?) SNOW, Birds Kansas, 1873, 6 (com. resid.).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 96, pl. 7, fig. 1.—LANGDON, Birds Cincinnati, 1877, 4 (winter visitor?).—BREWSTER, Bull. Nutt. Orn. Club, iii, 1878, 19 (descr. young); iii, 1886, 177 (Black Mts. w. North Carolina, in balsam belt; crit.).—SCOTT (W. E. D.), Bull. Nutt. Orn. Club, iv, 1879, 140 (Johnson Co., s. w. Missouri; breeding; crit.).—COVERT, Annot. List Birds Washtenaw Co., Michigan, 1881, 175 (resident).—RIDGWAY, Nom. N. Am. Birds, 1881, no.

^a The present example of an isolated colony of a particular form, or what must be regarded as the same form in the absence of obvious distinctive characters, is one of several instances which are very troublesome to both the systematist and the student of geographic distribution. The birds of this species occurring, exclusively, in the area defined above are clearly intermediates between *P. a. septentrionalis*, a form larger and paler than *P. a. atricapillus*, which occupies the region immediately eastward, and *P. a. occidentalis*, a form smaller and darker than *P. a. atricapillus*, which inhabits the region immediately westward. It thus happens that, while these puzzling birds are practically, if not absolutely, indistinguishable from *P. a. atricapillus* they can hardly be considered exactly the same, since they are everywhere widely cut off from the latter by the very extensive area occupied by *P. a. septentrionalis*.

41; Orn. Illinois, i, 1889, 80.—GADOW, Cat. Birds Brit. Mus., viii, 1883, 44, part.—BICKNELL, Auk, i, 1884, 135 (song period).—PALMER (W.), Auk, ii, 1885, 304 (District Columbia, Mar. and Apr., 1885; common); Proc. U. S. Nat. Mus., xiii, 1890, 265 (St. John, Newfoundland).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 735.—COOKE, Bird Migr. Miss. Val., 1888, 277, part (w. Iowa, e. Kansas, and "southern Illinois," northward; St. Louis, Missouri, Mar. 20–26).—EVERMANN, Auk, vi, 1889, 29 (Carroll Co., Indiana; resident).—PINDAR, Auk, vi, 1889, 316 (Fulton Co., Kentucky; rare winter resid.).—GOSS, Hist. Birds Kansas, 1891, 631, part (e. Kansas; mid. and w. Kansas?).—DWIGHT, Auk, x, 1893, 14 (Prince Edward I., breeding).—TODD, Auk, x, 1893, 41, 46 (Indiana and Clearfield counties, w. Pennsylvania; breeding).—BUTLER, Birds Indiana, 1897, 1136 (resident south to Tippecanoe, Carroll, and Wayne counties; south in winter to Monroe Co.).—HADLEY, Proc. Ind. Ac. Sci., 1897, 196 (Richmond, Wayne Co., Indiana; common resid.).—SANDERSON, Auk, xv, 1898, 150 (food, habits, etc.).—BIGELOW, Auk, xix, 1902, 30 (Labrador, wooded districts).—PREBLE, N. Am. Fauna, no. 22, 1902, 128 (Moose Factory, Ontario).

P[oecila] atricapillus BONAPARTE, Consp. Av., i, 1850, 230.

P[oecile] atricapilla CABANIS, Mus. Hein., i, 1850, 91.

Poecile atricapillus COUES, Proc. Essex Inst., vi, 1868, 279.

P[arvus] (Poecile) atricapillus atricapillus HELLMAYR, Tierreich, 18 Lief., Mar., 1903, 55.

Parus palustris (not of Linnæus) NUTTALL, Man. Orn. U. S. and Can., i, 1832, 79.

P[arvus] atricapillus MAXIMILIAN, Journ. für Orn., 1858, 119, part.—NELSON, Bull. Essex Inst., viii, 1876, 95, 152 (n. e. Illinois, resident).—COUES, Key N. Am. Birds, 2d ed., 1884, 265.—RIDGWAY, Man. N. Am. Birds, 1887, 563.

[*Parus atricapillus*] var. *atricapillus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 94.

Parus atrocipillus ULREY and WALLACE, Proc. Ind. Ac. Sci., 1895, 159 (Wabash Co., Indiana, abt. winter resid.).

Western "Colony."

Parus occidentalis (not of Baird) BENDIRE, Proc. Bost. Soc. N. H., 1877, 112 (Camp Harney, Oregon, winter).

Parus atricapillus occidentalis BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 228 (Walla Walla, e. Washington; crit.).

Parus atricapillus MERRILL (J. C.), Auk, xv, 1898, 20 (Fort Sherman, Idaho, resident).—BREWSTER, Auk, xv, 1898, 20 (Fort Sherman, Idaho; crit.).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 457, part (Fort Sherman, Idaho).

Parus atricapillus septentrionalis (not *P. septentrionalis* Harris) CHAPMAN, Bull. Am. Mus. N. H., iii, 1900, 153 (Ashcroft, int. British Columbia; crit.).—FANNIN, Check List Birds Brit. Col., 1891, 44 (east of Cascade range).

PENTHESTES ATRICAPILLUS SEPTENTRIONALIS (Harris).

LONG-TAILED CHICKADEE.

Similar to *P. a. atricapillus*, but larger, with wing and tail averaging decidedly longer; coloration paler, with whitish edgings to greater wing-coverts, secondaries and lateral rectrices broader, more conspicuous.

Adult male.—Length (skins), 124.5–140.5 (131.2); wing, 65.5–73

(69.7); tail, 63.5–71 (67.7); culmen, 9.5–11 (9.7); tarsus, 16.5–18.5 (17.2); middle toe, 9.5–11.5 (10.5).^a

Adult female.—Length (skins), 119–137 (122.2); wing, 63.5–68.5 (66.5); tail, 61–67 (64.4); culmen, 8.5–10 (9.5); tarsus, 15–18 (16.7); middle toe, 8.5–11 (9.9).^b

Great Plains and Rocky Mountain districts of central North America, from New Mexico and Kansas to the Kenai Peninsula, Alaska, and province of Mackenzie (Slave Lake district); east to eastern Kansas (Topeka, etc.), Iowa (Mitchell and Winnebago counties),^c eastern South Dakota, western Minnesota, Manitoba, and southwestern Keewatin (lower Echimamish); west to Salt Lake Valley, Utah.

Parus septentrionalis HARRIS, Proc. Ac. Nat. Sci. Phila., ii, Dec. 1845, 300 (near mouth Yellowstone R., w. North Dakota; coll. Ac. Nat. Sci. Phila.); Ann. and Mag. N. H., xvii, 1846, 452, 454.—BAIRD, in Stansbury's Rep. Great Salt Lake, 1852, 316 (Yellowstone R.); Rep. Pacific R. R. Surv., ix, 1858, 389; Cat. N. Am. Birds, 1859, no. 289; Review Am. Birds, 1864, 79.—CASSIN, Illustr. Birds, Tex., Cal., etc., 1853, 17, 80, pl. 14.—SCLATER, Cat. Am. Birds, 1862, 14 Fort Riley, Kansas).—HAYDEN, Trans. Am. Philos. Soc., xii, 1862, 164 (Upper Missouri Valley).—BLAKISTON, Ibis, 1862, 5 (Saskatchewan); 1863, 67 (Saskatchewan).—(?) HOY, Ann. Rep. Smithsonian Inst. for 1864 (1865), 438 (Missouri).—STEVENSON, Rep. U. S. Geol. Surv. for 1870 (1871), 464 (Fort Bridger, Green R., etc., Wyoming).—AIKEN, Proc. Bost. Soc. N. H., xvi, 1872, 195 (Colorado).—MERRIAM, Rep. U. S. Geol. Surv. Terr. for 1872 (1873), 713 (Utah).—(?) SNOW, Birds, Kansas, 1873, 6.

Lophophanes septentrionalis BAIRD, in Stansbury's Rep. Great Salt Lake, 1852, 332.

Parus atricapillus, var. *septentrionalis* ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 166 (Ogden, Utah), 174 (Kansas; Colorado; Utah); Am. Nat., vi, 1872, 396, in text (Ogden and Weber R., Utah); Proc. Bost. Soc. N. H., xvii, 1874, 49 (Yellowstone, Musselshell, and Heart rivers, Montana).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 99.—COUES, Birds N. W., 1874, 21.—TRIPPE, in Coues's Birds N. W., 1874, 230 (Colorado; plains up to 9,000 ft.).—NELSON, Proc. Bost. Soc. N. H., xvii, 1875, 339 (Utah).

Parus var. *septentrionalis* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 7, fig. 2.

^aTwenty specimens.

^bSixteen specimens.

Specimens from the Great Plains (Alberta and Saskatchewan to Nebraska) and those from the Rocky Mountains (Montana to New Mexico) compare in average measurements as follows:

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Middle toe.
MALES.					
Ten adult males from Great Plains district.....	69.5	68.2	10	17.2	10.5
Ten adult males from Rocky Mountains district	69.9	67.2	9.5	17.2	10.6
FEMALES.					
Ten adult females from Great Plains district.....	66.2	64.1	9.5	16.5	9.7
Six adult females from Rocky Mountains district	67.1	64.7	9.5	17	10.2

The coloration appears to be quite the same in the two series when specimens of corresponding season are compared.

^cBreeding.

- [*Parus atricapillus*.] Var. *septrionalis* COUES, Key N. Am. Birds, 1872, 81.
- Parus atricapillus* . . . var. *septrionalis* COUES, Check List, 1873, no. 31a.—RIDGWAY, Bull. Essex Inst., v, 1873, 179 (Colorado).—YARROW and HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 7 (Provo R., Utah, July).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 40 (Provo, Utah), 57 (Denver, Colorado, May), 72 (Fort Garland, Colorado; habits); Zool. Exp. W. 100th Merid., 1875, 170 (Provo, Utah; Fort Garland and Pueblo, Colorado).
- Parus atricapillus septrionalis* RIDGWAY, Bull. Essex Inst., vii, Jan., 1875, 35 (Provo R., Utah); Nom. N. Am. Birds, 1881, no. 41a.—COUES, Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 554 (Upper Missouri R. and Chief Mountain Lake, Montana); Birds Col. Val., 1878, 120; Check List, 2d ed., 1882, no. 45.—MINOR, Bull. Nutt. Orn. Club, v, 1880, 225 (mountains of Colorado above 7,000 ft. in summer; notes).—DREW, Bull. Nutt. Orn. Club, vi, 1881, 87 (San Juan Co., Colorado; breeding).—BEAN, Proc. U. S. Nat. Mus., v, 1882, 146, part (Port Chatham, Cook Inlet, Alaska).—ALLEN and BREWSTER, Bull. Nutt. Orn. Club, viii, 1883, 154 (Austins Bluffs, Colorado; crit.).—AGERSBERG, Auk, ii, 1885, 277 (s. e. South Dakota; resident).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 735a.—COOKE, Bird Migr. Miss. Val., 1888, 278 (Missouri; e. Nebraska; w. Minnesota; s. e. South Dakota; Manhattan, Kansas; breeding).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1890, 631 (Manitoba; resident).—GOSS, Hist. Birds Kansas, 1891, 634 (w. Kansas).—NUTTING, Bull. Labr. N. H. State Univ. Iowa, ii, 1893, 279 (Grand Rapids, lower Saskatchewan).—COOKE, Bull. 37, Col. State Agric. Coll., 1897, 122 (resident, breeding from 7,000–10,000 ft.).—CORBEAUX, Ottawa Nat., 1900, 31 (s. Saskatchewan).—OSGOOP, North Am. Fauna, no. 21, 1901, 80 (Turnagain Arm and Tyanook, Cook Inlet, Alaska; crit.).—PREBLE, North Am. Fauna, no. 22, 1902, 129 (lower Echimamish, s. w. Keewatin).
- Parus atricapillus*, β . *septrionalis* RIDGWAY, Field and Forest, ii, May, 1877, 196 (Colorado).
- Parus atricapillus* . . . β . *septrionalis* RIDGWAY, Orn. 40th Parallel, 1877, 412 (Provo R., Utah).
- P[arus] a[tricapillus] septrionalis* COUES, Key N. Am. Birds, 2d ed., 1884, 266.—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 457.
- P[arus] atricapillus septrionalis* RIDGWAY, Man. N. Am. Birds, 1887, 563.
- P[arus] (P[ocile]) atricapillus septrionalis* HELLMAYR, Tierreich, 18 Lief. March, 1903, 56.
- P[arus] albescens* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, p. xxxvii (Rocky Mts.; nomen nudum; but characters given, without name, on p. 389, in text).
- Parus septrionalis*, var.? *albescens* COOPER, Am. Nat., iii, 1869, 299 (Sun R., North Dakota).
- [*Parus septrionalis*.] Var. *Parus albescens* BAIRD, Cat. N. Am. Birds, 1859, no. 289a.
- Parus septrionalis* (?), var. *albescens* COOPER, Am. Nat., iii, 1869, 74 (Upper Missouri R.).
- P[arus] atricapillus* (not of Linnaeus) MAXIMILIAN, Journ. für Orn., 1858, 119 (Missouri R., etc.).
- Parus atricapillus* ALLEN, Bull. Mus. Comp. Zool., ii, 1871, 134 (Fort Hays, Kansas), 142 (n. w. Kansas), 155 (South Park, Colorado), 261, part (crit.) 270 (Fort Hays).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 44, part.
- (?) *Parus atricapillus* ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 125, 265, in text (Topeka, e. Kansas).—LLOYD, Auk, iv, 1887, 298 (e. Concho Co., w. Texas, 1 spec., spring).—GOSS, Hist. Birds Kansas, 1891, 631, part (mid. and w. Kansas).

PENTHESTES ATRICAPILLUS TURNERI (Ridgway).

YUKON CHICKADEE.

Similar to *P. a. septentrionalis* but slightly smaller, coloration grayer above and more extensively or purely white beneath, and white edgings of greater wing-coverts, secondaries, and outermost rectrices broader, more purely white; in spring and summer plumage the gray of upper parts without perceptible tinge of buff, except on rump and upper tail-coverts, where very faint, and white of sides and flanks very faintly, if at all, tinged with buff; in fall and winter plumage the buffy tinge on sides and flanks very much paler than in *P. a. septentrionalis*.

Adult male.—Length (skins), 125–138 (129.5); wing, 62.5–69.5 (66.3); tail, 61.5–67 (65); culmen, 8.5–10 (8.9); tarsus, 15.5–17 (16.3); middle toe, 9–10.5 (9.5).^a

Adult female.—Length (skins), 129–133.5 (131.7); wing, 64–65 (64.5); tail, 62.5–64.5 (63.7); culmen, 8.5–9.5 (9); tarsus, 15–16.5 (15.8); middle toe, 9–9.5 (9.2).^b

Alaska, west and north of Cook Inlet.

Parus atricapillus (not of Linnæus) DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 280 (Nulato, St. Michael, and Kadiak, Alaska).—ADAMS, Ibis, 1878, 423 (St. Michael, Alaska).

Parus atricapillus septentrionalis (not *Parus septentrionalis* Harris) NELSON, Cruise "Corwin" in 1881 (1883), 60 (shores of Norton and Kotzebue sounds, etc., Alaska); Rep. Nat. Hist. Spec. Alaska, 1887, 211 (Alaska; habits, etc.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 735a, part.—RIDGWAY, Proc. U. S. Nat. Mus., xvi, 1893, 665 (Kadiak).—BISHOP, North Am. Fauna, no. 10, 1900, 92 (Bennett, Caribou, Crossing, Lake Lebarge, lower Yukon, etc., Alaska).—GRINNELL (J.), Pacific Coast Avifauna, no. 1, 1900, 59 (Hunt R., Alaska); Condor, iii, 1901, 22 (Kadiak).—

Parus atricapillus occidentalis (not *Parus occidentalis* Baird) TURNER, Contr. Nat. Hist. Alaska, 1886, 182 (Yukon district, St. Michael, etc.).

Parus atricapillus turneri RIDGWAY, Proc. Biol. Soc. Wash., ii, Apr. 10, 1884, 89 (St. Michael, Alaska; coll. U. S. Nat. Mus.).

P[arus] a[tricapillus] turneri OSGOOD, N. Am. Fauna, no. 21, 1901, 80, in text.

P[arus] (Pocile) atricapillus turneri HELLMAYR, Tierreich, 18. Lief., Mar., 1903, 56.

PENTHESTES ATRICAPILLUS OCCIDENTALIS (Baird).

OREGON CHICKADEE.

Similar to *P. a. atricapillus* but decidedly smaller (except bill and feet) and coloration very much darker; back varying from deep mouse gray or very slight buffy slate-gray in spring and summer to deep hair brown or light olive in fall and winter plumage; sides and flanks (broadly) pale grayish buff in spring and summer, deep brownish buff, wood brown, or isabella color in fall and winter; whitish edgings of innermost greater wing-coverts, secondaries, and exterior rectrices more restricted than in *P. a. atricapillus*.

^a Fifteen specimens.

^b Three specimens.

Adult male.—Length (skins), 110.5–126.5 (118); wing, 60–65 (61.9); tail, 53.5–58 (56.5); culmen, 9–10 (9.3); tarsus, 16–17.5 (16.9); middle toe, 9.5–11 (10.4)^a.

Adult female.—Length (skins), 113.5–121 (119.5); wing, 58–61.5 (59.5); tail, 53–57.5 (55); culmen, 9–10 (9.5); tarsus, 15.5–17 (16.5); middle toe, 10–10.5 (10.2)^a.

Humid northwest coast district, from the Columbia River to British Columbia (Port Moody; Agassiz).

Parus atricapillus? (not *Parus atricapillus* Linnæus) NEWBERRY, Rep. Pacific R. R. Surv., x, pt. iv, 1857, 79 (California, Oregon).

Parus atricapillus ALLEN, Bull. Mus. Comp. Zool., ii, 1871, 261, part (crit.).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 44, part.

Parus occidentalis BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 391 (Shoalwater Bay, Washington; coll. U. S. Nat. Mus.); Cat. N. Am. Birds, 1859, no. 291; Review Am. Birds, 1864, 81.—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 194 (Puget Sound and Fort Vancouver, Washington; Willamette Valley, Oregon).—SCLATER, Cat. Am. Birds, 1862, 14 (Shoalwater Bay).—ELLIOT, Illustr. New and Unfig. N. Am. Birds, i, 1869, pl. 8.—COOPER, Orn. Cal., 1870, 45.

[*Parus atricapillus*] Var. *occidentalis* COUES, Key N. Am. Birds, 1872, 81.

Parus atricapillus . . . var. *occidentalis* COUES, Check List, 1873, no. 31c.

Parus atricapillus, var. *occidentalis* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 101.

Parus var. *occidentalis* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 7, fig. 3.

(?) *Parus atricapillus occidentalis* RIDGWAY, Bull. Essex Inst., vi, Oct., 1874, 172 (Sacramento Valley, California).—EVERMANN, Auk, iii, 1886, 186 (Ventura Co., California, rare winter resid.).

Parus atricapillus occidentalis RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 168; Nom. N. Am. Birds, 1881, no. 41b.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 735b.—FANNIN, Check List Birds Brit. Col., 1891, 44 (west side of Cascade Range).—CHAPMAN, Bull. Am. Mus. N. H., iii, 1900, 153 (coast British Columbia).—RATHBUN (S. F.), Auk, xix, 1902, 140 (Seattle, Washington, resident).

P[arus] a[tricapillus] occidentalis COUES, Key N. Am. Birds, 2d ed., 1884, 266.—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 458.

P[arus] atricapillus occidentalis RIDGWAY, Man. N. Am. Birds, 1887, 563.

[*Parus atricapillus*] *γ. occidentalis* RIDGWAY, Orn. 40th Parallel, 1877, 412 (synonymy).

P[arus] (*Poecile*) *atricapillus occidentalis* HELLMAYR, Tierreich, 18 Lief., Mar., 1903, 56.

PENTHESTES CAROLINENSIS CAROLINENSIS (Audubon).

CAROLINA CHICKADEE.

Similar to *P. atricapillus atricapillus* but decidedly smaller, with relatively shorter tail and larger bill, darker coloration, with little if any white on wings and tail, and with the black throat-patch abruptly defined posteriorly.

^a Ten specimens.

Adults (sexes alike) in spring and summer.—Pileum (including upper half of lores and whole postocular region), hindneck, malar region, chin, throat and upper portion of chest uniform black, the last abruptly defined against white of lower chest; sides of head and neck, between the two black areas, white; back, scapulars, and lesser wing-coverts plain gray (between olive-gray and mouse gray), the rump and upper tail-coverts similar but slightly more buffy; wings and tail darker gray with paler gray edgings, these sometimes approaching white on outer webs of tertials; under parts of body dull white, becoming faintly buffy on sides and flanks; bill black; iris brown; legs and feet bluish gray in life (dusky in dried skins).

Adults in fall and winter.—Similar to the spring and summer plumage, but gray of upper part more strongly tinged with buff, and sides and flanks more strongly buffy.

Young.—Similar to adults but black of head, especially that of chin and throat, duller and less glossy.

Adult male.—Length (skins), 105–123 (111.2); wing, 57.5–66.5 (61.8); tail, 47–57.5 (51.9); culmen, 7.5–9 (8.4); tarsus, 14.5–16.5 (15.8); middle toe, 8.5–10.5 (9.8).^a

Adult female.—Length (skins), 96.5–118 (104.2); wing, 54.5–63.5 (61.2); tail, 46.5–57.5 (53.3); culmen, 7.5–9 (8.4); tarsus, 13.5–16 (15.4); middle toe, 8.5–10 (9.6).^b

^aThirty-three specimens.

^bTwenty-six specimens.

Specimens from different geographic areas average in measurements, respectively, as follows:

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Middle toe.
MALES.					
Ten adult males from Ohio, Indiana, Illinois, and Tennessee	64.3	54.9	8.6	16.2	10.1
Ten adult males from Maryland, District Columbia, and Virginia	62.4	52.4	8.3	15.6	9.7
Three adult males from North Carolina	61.2	50.7	7.8	15.7	9.7
Two adult males from South Carolina	60.2	50.5	8.5	16	10
Two adult males from Georgia	59.7	48.5	8.5	15.5	9.5
Four adult males from northwestern Florida	58	48.4	8.6	15.1	8.9
Two adult males from Louisiana	58	47.7	8.7	15.5	9.7
FEMALES.					
Eight adult females from Indiana, Illinois, and Tennessee	61.2	53.3	8.4	15.4	9.6
Ten adult females from Maryland and District Columbia ..	59.3	49.8	8.1	14.6	9.1
Three adult females from North Carolina	58.5	48.3	8.2	15	9.2
One adult female from South Carolina	58.5	48.5	8	15	9.3
Four adult females from northwestern Florida	55.9	48.1	8.4	14.6	8.9

Specimens from the Ohio Valley, besides being larger are appreciably darker than those from the Potomac Valley, in the latter respect very closely matching those from the Gulf States.

Eastern United States, chiefly south of parallel of 40°; north to southern New Jersey (Cape May, Long Beach, Princeton, pine barrens, etc.), southeastern Pennsylvania (Lancaster^a and Chester^a counties), southern Ohio, southern two-thirds of Indiana (north to Carroll County), and greater part of Illinois (rare beyond middle portion); south to northern and western Florida (as far as Caloosahatchee River^a) and Gulf coast westward to Louisiana.

Parus carolinensis AUDUBON, Orn. Biog., ii, 1834, 341, pl. 160 (near Charleston, South Carolina; type in coll. U. S. Nat. Mus.); Synopsis, 1839, 79; Birds Am., oct. ed., ii, 1841, 152, pl. 127.—NUTTALL, Man. Orn. U. S. and Can., 2d ed., 1840, 265.—CASSIN, Illustr. Birds Tex., Cal., etc., 1853, 17.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 392; Cat. N. Am. Birds, 1859, no. 293; Review Am. Birds, 1864, 81.—SCLATER, Cat. Am. Birds, 1862, 13 (District of Columbia).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 102, pl. 7, fig. 4.—BREWSTER, Ann. Lyc. N. Y., xi, 1875, 133 (Ritchie Co., West Virginia; habits; notes); Bull. Nutt. Orn. Club, iv, 1879, 39 (descr. young); Auk, iii, 1886, 177 (mountains of w. North Carolina, up to 4,000 ft.; notes).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 42; Orn. Illinois, i, 1889, 81.—LANGDON, Birds Cincinnati, 1877, 4 (resident).—COUES, Check List, 2d ed., 1882, no. 47.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 736.—COOKE, Bird Migr. Miss. Val., 1888, 278, part.—BUTLER, Bull. Brookv. Soc. N. H., no. 2, 1886, 38 (Franklin Co., Indiana, common resid.); Birds Indiana, 1897, 1137 (north to Carroll Co.).—EVERMANN, Auk, vi, 1889, 29 (Carroll Co., Indiana, resident).—SCOTT (W. E. D.), Auk, ix, 1892, 214 (Caloosahatchee R., Florida, breeding).—STONE, Auk, ix, 1892, 204 (Cape May, New Jersey); xi, 1894, 140 (pine barrens, New Jersey, common).—BEYER, Proc. Louis. Soc. Nat., 1897-99 (1900), 43 (Louisiana, resident).

P[arus] carolinensis RIDGWAY, Ann. Lyc. N. Y., x, 1874, 366 (s. half Illinois, resident); Man. N. Am. Birds, 1887, 562.—NELSON, Bull. Essex Inst., viii, 1876, 95 (n. e. Illinois, rare in summer); ix, 1877, 33 (Mount Carmel, Illinois).—COUES, Key N. Am. Birds, 2d ed., 1884, 266.

[*Parus atricapillus*.] Var. *carolinensis* COUES, Key N. Am. Birds, 1872, 81.

Parus atricapillus . . . var. *carolinensis* COUES, Check List, 1873, no. 31b.

Parus atricapillus var. *carolinensis* SCOTT (W. E. D.), Bull. Nutt. Orn. Club, iv, 1879, 81 (Princeton, New Jersey, breeding).

[*Parus atricapillus*.] Subspecies α . *Parus carolinensis* GADOW, Cat. Birds Brit Mus., viii, 1883, 46.

Parus atricapillus carolinensis SCOTT (W. E. D.), Bull. Nutt. Orn. Club, iv, 1879, 223 (Long Beach, New Jersey).

[*Poecila*] *carolinensis* BONAPARTE, Consp. Av., i, 1850, 230.

P[oecile] carolinensis CABANIS, Mus. Hein., i, 1851, 91.

P[arus] (Poecile) carolinensis carolinensis HELLMAYR, Tierreich, 18 Lief., Mar., 1903, 54.

Parus atricapillus (not of Linnaeus) WOODHOUSE, in Sitgreaves' Expl. Zuffi and Col. R., 1853, 68 (Indian Territory).—ALLEN, Bull. Mus. Comp. Zool., ii, 1871, 261, part (crit.).—MAYNARD, Birds Florida, 1872, 30, part (crit.).

^a Breeding.

PENTHESTES CAROLINENSIS AGILIS (Sennett).

TEXAN CHICKADEE.

Similar to *P. c. carolinensis* but slightly larger,^a with gray of upper parts slightly paler and clearer.

Adult male.—Length (skins), 110.5–122 (115.5); wing, 60–66 (62.9); tail, 52.5–58 (53.8); culmen, 8–9.5 (8.8); tarsus, 14.5–17 (16); middle toe 9.5–10.5.^b

Adult female.—Length (skins), 102.5–124.5 (109.8); wing, 57.5–61.5 (59.9); tail, 47–55 (50.8); culmen, 8.5–9 (8.8); tarsus, 14–16 (15.2); middle toe, 9–10 (9.4).^c

Eastern and central Texas (south to Bee, and Refugio counties, west to Bexar, Kendall, and eastern Comal counties), Indian Territory (Stillwell) and Oklahoma (Fort Reno).

Parus carolinensis (not of Audubon) DRESSER, Ibis, 1865, 486 (San Antonio, Texas).—BREWSTER, Bull. Nutt. Orn. Club, iv, 1879, 76 (Comal Co., Texas, resident).—BROWN (N. C.), Bull. Nutt. Orn. Club, vii, 1882, 33 (Boerne, s. w. Texas).—NEHRING, Bull. Nutt. Orn. Club, vii, 1882, 8 (Harris Co., Texas, resident).—LLOYD, Auk, iv, 1887, 298 (e. Concho Co., w. Texas, spring and winter).—COOKE, Bird Migr. Miss. Valley, 1888, 278, part (Concho and Comal counties, Texas; e. Texas).

Parus carolinensis agilis SENNETT, Auk, v, Jan. 1888, 46 (Bee Co., Texas); coll. G. B. Sennett).—CHAPMAN, Auk, v, 1888, 400.—BECKHAM, Proc. U. S. Nat. Mus., x, 1888, 693 (San Antonio and Leon Springs, Texas).—HASBROUCK, Auk, vi, 1889, 241 (Eastland Co., Texas).—ATTWATER, Auk, ix, 1892, 344 (San Antonio).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 2d ed., 1895, no. 736 a.—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 610.—CARROLL, Auk, xvii, 1900, 348 (Refugio Co., Texas).

P[arus] (Poecile) carolinensis agilis HELLMAYR, Tierreich, 18 Lief., Mar., 1903, 54.

PENTHESTES CAROLINENSIS IMPIGER (Bangs).

FLORIDA CHICKADEE.

Similar to *P. c. carolinensis* but darker and decidedly smaller (except bill).

Adult male.—Length (skin), 106; wing, 53.5; tail, 46; culmen, 8; tarsus, 14.5; middle toe, 8.5.^d

Adult female.—Length (skin), 111.5; wing, 52.5; tail, 44.5; culmen, 8; tarsus, 14.5; middle toe, 8.^e

^a Averaging slightly smaller, however, than specimens of *P. c. carolinensis* from the Ohio Valley.

^b Ten specimens.

^c Nine specimens.

^d One specimen.

^e One specimen (the type).

Eastern Florida (Deep Creek, near Enterprise).

Parus carolinensis impiger BANGS, Proc. New Engl. Zool. Club, iv, Mar, 16, 1903, 1 (Deep Creek, near Lake Ashby, e. Florida; coll. E. A. and O. Bangs).

PENTHESTES SCLATERI (Kleinschmidt).

MEXICAN CHIOKADEE.

Similar to *P. carolinensis* but larger and darker, and with the sides and flanks olive-gray.

Adults in spring and summer.—Pileum (including postocular and upper half of loreal regions) and hindneck uniform black, with a faint bluish gloss; malar region, chin, throat, and upper chest uniform deep black, very sharply defined posteriorly; sides of head and neck between the two black areas, white; back, scapular, lesser wing-coverts, rump, and upper tail coverts plain deep olive-gray or mouse gray, the rump more strongly tinged with olive; wings and tail dull slate color with gray edgings, these paler on primaries and (except in worn plumage) on tertials; sides and flanks (broadly) and under tail-coverts olive-gray (paler and more tinged with olive than back); median portion of lower chest, breast, and abdomen, white; bill, black; iris, brown; legs and feet, dusky (bluish gray in life?).

Adults in autumn and winter.—Similar to the spring and summer plumage, but slightly more strongly tinged with olive, especially on sides and flanks.

Young.—Similar to adults, but black of head duller, and texture of plumage different.

Adult male.—Length (skins), 111.5–134.5 (120.4); wing, 65–71.5 (68.5); tail, 54.5–61.5 (57.9); culmen, 8–10 (9.2); tarsus, 17–19.5 (17.8), middle toe, 9–11 (10.1).^a

Adult female.—Length (skins), 108–126.5 (119.5); wing, 64.5–68.5 (66.5); tail, 54.5–58.5 (56.7); culmen, 9–9.5 (9.3); tarsus, 17–18.5 (17.4); middle toe, 9–10.5 (9.8).^b

^a Twenty specimens.

^b Ten specimens.

Specimens from central and southern Mexico compare in average measurements with those from northwestern Mexico and southern Arizona, as follows:

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Middle toe.
MALES.					
Ten adult males from central and southern Mexico.....	67.3	56.5	9.2	17.9	10.3
Ten adult males from Chihuahua and southern Arizona..	69.8	59.3	9.3	17.8	9.8
FEMALES.					
Six adult females from central and southern Mexico	66.1	56.4	9.2	17.5	10
Four adult females from Chihuahua and southern Arizona..	67.2	57.2	9.4	17.4	9.5

The northern series, perhaps, averages a very little paler and less olivaceous, but the difference seems too slight and inconstant to warrant subspecific separation.

Highlands of Mexico, from States of Oaxaca (La Parada, etc.), Vera Cruz (Orizaba, Las Vigas, Jalapa, etc.), and Puebla (Teziutlan) northwestward to southern Arizona (Chiricahua Mountains).

Parus meridionalis (not of Lilljeborg, 1852) SCLATER, Proc. Zool. Soc. Lond., 1856, 293 (El Jacale,^a s. Mexico; coll. P. L. Sclater); 1857, 81 (crit.); 1858, 299 (La Parada, Oaxaca); 1859, 363 (Jalapa, Vera Cruz); Cat. Am. Birds, 1862, 14 (La Parada).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 392 (El Jacale); Cat. N. Am. Birds, 1859, no. 292; Review Am. Birds, 1864, 81 (Orizaba, Vera Cruz).—SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 544 (Moyoapam, near Orizaba).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 57.—BREWSTER, Bull. Nutt. Orn. Club, vi, 1881, 252 (Chiricahua Mts., s. Arizona); vii, 1882, 79 (do., alt. 7,000–10,000 ft.).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 43; Proc. U. S. Nat. Mus., ix, 1886, 134 (Teziutlan, Puebla; crit.).—COUES, Check List, 2d ed., 1882, no. 879 (p. 135); Key, 2d ed., 1884, 266.—GADOW, Cat. Birds, Brit. Mus., viii, 1883, 46.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 737.—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 134 (Teziutlan, Puebla).—ALLEN, Bull. Am. Mus., N. H., v, 1893, 41 (Tatuaca, etc., n. Chihuahua).—CHAPMAN, Bull. Am. Mus. N. H., ix, 1898, 38 (Las Vigas, Vera Cruz, 8,000 ft.; notes).

[*Parus*] *meridionalis* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 4.

P[arus] meridionalis BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 94.—COUES, Key N. Am. Birds, 2d ed., 1884, 266.—RIDGWAY, Man. N. Am. Birds, 1887, 562.

P[arus] sclateri KLEINSCHMIDT, Journ. für. Orn., xlv, Apr., 1897, 133, in text (to replace *Parus meridionalis* Sclater, preoccupied).

Parus sclateri NELSON, Auk, xv, 1898, 160 (note on specific name).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 126.—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 458.

P[arus] (Poecile) sclateri HELLMAYR, Tierreich, 18 Lief., Mar., 1903, 52.

PENTHESTES GAMBELI (Ridgway).

MOUNTAIN CHICKADEE.

Similar to *P. sclateri* but paler (especially color of sides and flanks) and with a white superciliary stripe.

Adults in spring and summer.—Pileum (including postocular and upper half of loreal regions) hindneck, part of malar region, chin, throat, and upper chest uniform deep black, the first broken by a narrow superciliary stripe of white;^b sides of head and neck between the black areas white; back, scapulars, lesser wing-coverts, rump, and upper tail-coverts plain, deep olive-gray, or mouse gray; wings and tail darker gray with paler gray edgings; median portion of lower chest, breast, and abdomen dull white; sides, flanks, and under tail-coverts pale olive-gray; bill black; iris brown; legs and feet dusky (bluish gray in life).

^a Probably in State of Vera Cruz or in Puebla; possibly *Jacala*, Hidalgo.

^b Narrower and less distinct in worn midsummer plumage, in which there is a series of narrow white streaks rather than a continuous stripe.

Adults in autumn and winter.—Similar to the spring and summer plumage but white superciliary stripe broader, feathers of forehead more or less (sometimes broadly) margined with white, the gray parts more buffy (that of back, etc., between smoke gray and hair brown, that of sides and flanks light buffy drab-gray).

Young.—Similar to adults but the black of head and neck duller, white superciliary streak much less distinct (pale gray rather than white) and edgings of greater wing-coverts and tertials faintly tinged with pale brownish buff.

Adult male.—Length (skins), 121.5–138 (128.4); wing, 66.5–72.5 (70.2); tail, 57.5–65.5 (61); culmen, 9.5–11.5 (10.4); tarsus, 16.5–19 (18.2); middle toe, 9.5–11 (10.4).^a

Adult female.—Length (skins), 113.5–140 (122.8); wing, 65–72 (67.3); tail, 54.5–60.5 (58.7); culmen, 9.5–11 (10.1); tarsus, 16.5–19 (17.7); middle toe, 9.5–10.5 (9.9).^b

Mountains of western United States, from the Rocky Mountains to the coast ranges; north to British Columbia (east of Cascade Range), northern Idaho (Fort Sherman), Montana, etc.; south to western Texas (Davis Mountains), New Mexico, Arizona, and northern Lower California (San Pedro Martir Mountains, Villadares, etc.).

Parus montanus (not *P. cinereus montanus* Baldenstein, 1827) GAMBEL, Proc. Ac.

- Nat. Sci. Phila., i, 1843, 259 (Santa Fé, New Mexico); iii, 1846, 155; Journ. Ac. Nat. Sci., Phila., 2d ser., i, 1847, 35, pl. 8, fig. 1.—CASSIN, Illustr. Birds Texas, California, etc., 1853, 18.—WOODHOUSE, in Rep. Sitgreaves Expl. Zuffi and Col. R., 1853, 68 (San Francisco Mt., Arizona).—NEWBERRY, Rep. Pacific R. R. Surv., vi, 1857, 79 (Des Chutes Basin, Oregon).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 394; Cat. N. Am. Birds, 1859, no. 294; in Rep. Ives' Expl. Col. R., pt. v, 1861, 6 (San Francisco Mt.); Review Am. Birds, 1864, 82.—XANTUS, Proc. Ac. Nat. Sci. Phila., 1859, 191 (Fort Tejon, Cali-

^a Twenty-four specimens.

^b Seventeen specimens.

Specimens from different geographic areas average respectively as follows:

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Middle toe.
MALES.					
Eight adult males from Pacific coast (southern California to Oregon).....	70.1	59.2	10.4	17.9	10.6
Two adult males from eastern Oregon	71.7	59	10.5	18	10.2
Two adult males from western Nevada	69.5	60	10	18.2	10
Eight adult males from Arizona, New Mexico, and Colorado	70.7	62.9	10.1	18.1	10.3
Four adult males from Wyoming (1) and Montana (3)	69.1	60.6	11	18.9	10.1
FEMALES.					
Five adult females from California to Washington	66.7	58	9.9	17.1	10
Four adult females from western Nevada	65.5	56.2	10.1	17.5	9.9
Eight adult females from Arizona and New Mexico to Montana	68.5	60.4	10.3	18.2	9.8

- fornia).—HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 42 (Tejon Pass, etc., California).—HENRY, Proc. Ac. Nat. Sci., Phila., 1859, 107 (New Mexico).—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 194 (Fort Dalles, Oregon).—SCLATER, Cat. Am. Birds, 1862, 14 (Tejon Pass, California).—COUES, Proc. Ac. Nat. Sci., Phila., xviii, 1866, 79 (Fort Whipple, Arizona); Check List, 1873, no. 32; 2d ed., 1882, no. 48; Birds N. W., 1874, 22; Birds Col. Val., 1878, 122.—COOPER, Am. Nat., iii, 1869, 75; (Montana); vii, 1874, 17; Orn. Cal., 1870, 46.—STEVENSON, Prelim. Rep. U. S. Geol. Surv. Terr. for 1870 (1871), 464 (Uintah Mts., Wyoming).—AIKEN, Proc. Bost. Soc. N. H., xv, 1872, 195 (Colorado).—ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 161 (Mount Lincoln, Colorado), 174 (mountains of Colorado).—MERRIAM, Rep. U. S. Geol. Surv. Terr. for 1872 (1873), 672 (Teton Cañon, Idaho; Shoshone Lake and Snake R., Wyoming; habits); 712 (Teton Basin and Cañon, Idaho), 713 (Fire-hole Basin, Wyoming; Utah).—YARROW and HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 7 (Fillmore, Utah).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 40 (Utah), 72 (Fort Garland, Colorado; habits), 99 (Arizona and New Mexico), 155 (Arizona); Zool. Exp. W. 100th Merid., 1875, 169 (localities in Utah, Colorado, and Arizona).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 95, pl. 7, fig. 5.—BENDIRE, Proc. Bost. Soc. N. H., 1877, 111 (Camp Harney, s. Oregon, breeding; descr. eggs).—BELDING, Bull. Nutt. Orn. Club, iii, 1878, 102 (breeding habits); Proc. U. S. Nat. Mus., i, 1879, 400 (Big Trees, Soda Springs, etc., California; descr. nest and eggs).—SCOTT, Bull. Nutt. Orn. Club, iv, 1879, 92 (Twin Lakes, Colorado, breeding).—MERRILL (J. C.), Bull. Nutt. Orn. Club, vi, 1881, 204 (descr. nest and eggs).—RIDGWAY, Orn. 40th Parallel, 1877, 411 (Sierra Nevada, Wahsatch, and Uintah Mts.; habits); Nom. N. Am. Birds, 1881, no. 40.—GADOW, Cat. Birds Brit. Mus., viii, 1883, 47.
- P[arus] montanus* GAMBEL, Journ. Ac. Nat. Sci. Phila., ii, 1847, 35 (New Mexico and Arizona; habits).—HENSHAW, Orn. Rep. Wheeler's Surv., 1879, 288 (e. slope Sierra Nevada).—COUES, Key N. Am. Birds, 2d ed., 1884, 266.
- [Parus] montanus* GRAY, Hand-list, i, 1869, 232, no. 3357.—COUES, Key N. Am. Birds, 1872, 81.
- Poecile montana* COUES, Proc. Ac. Nat. Sci. Phila., xviii, 1866, 79 (Arizona).
- Parus gambeli* RIDGWAY, in American Ornithologists' Union's Check List, 1886, p. 335 (no. 738; substitute for *P. montanus* Gambel, preoccupied).—EMERSON, Bull. 7, Cal. Ac. Sci., 1887, 424 (San Diego Co., California).—WILLIAMS, Auk, v, 1888, 118 (Belt Mts., Montana; descr. spotted eggs).—MERRILL (J. C.), Auk, v, 1888, 363 (Fort Klamath, Oregon, resident; habits; descr. nest and eggs); xv, 1898, 21 (Fort Sherman, Idaho, resident).—MEARNS, Auk, vii, 1890, 263 (Mogollon and San Francisco Mts., Arizona, up to 11,000 ft.; descr. nest, etc.).—FANNIN, Check List Birds Brit. Col., 1891, 44 (e. side of Cascade range).—FISHER (A. K.), North Am. Fauna, no. 7, 1893, 139 (Sierra Nevada, Panamint, Argus, Grapevine Mts., etc., California; descr. nest).—ANTHONY, Zoe, iv, 1893, 246 (San Pedro Martir Mts., Lower California; Valladares and lower valleys in winter).—COOKE, Bull. 37, Col. State Agric. Coll., 1897, 123 (Colorado, resident); Bull. 56, 1900, 222 (Trinidad, Colorado, 6,000 ft., breeding).—CHAPMAN, Bull. Am. Mus. N. H., iii, 1900, 153 (interior of British Columbia).—BARLOW, Condor, iii, 1901, 111 (habits, etc.; fig.).—OBERHOLSER, Auk, xix, 1902, 301 (Guadalupe and Davis Mts., w. Texas).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 458, pl.
- P[arus] gambeli* RIDGWAY, Man. N. Am. Birds, 1887, 562.

P[arus] (Poecile) gambeli HELLMAYR, Tierreich, 18 Lief., March, 1903, 51.

Parus gambeli thayeri BIRTWELL, Auk, xviii, April, 1901, 166 (near Albuquerque, New Mexico; coll. F. J. Birtwell).^a

PENTHESTES CINCTUS ALASCENSIS (Prazák).

ALASKAN CHICKADEE.

Similar to *P. c. obtectus*^b but with decidedly smaller bill and slightly darker coloration. Similar to *P. hudsonicus* but sides of neck white instead of gray, and coloration paler throughout.

Adults in spring and summer.—Pileum and hindneck plain, deep drab-gray, becoming much darker on loreal and postocular regions; back, scapulars, lesser wing-coverts, rump, and upper tail-coverts plain drab, slightly paler and more buffy posteriorly; wings and tail slate color with pale slate-gray edgings, these broader and nearly, if not quite, white on tertials; malar region, chin, and throat plain dark, sooty brown or very dark sepia, the feathers of lower throat broadly tipped with white; sides of head and neck, between the dusky gular area and grayish brown pileum, white; chest and median portion of breast and abdomen, white; sides and flanks pale wood brown or brownish buff, the under tail-coverts similar, but paler; bill dusky horn color; iris brown; legs and feet brownish dusky (grayish in life?).

Adults in autumn and winter.—Similar to the spring and summer plumage, but very slightly deeper in color.

Adult male.—Length (skins), 121.5–138.5 (131.3); wing, 69–70 (69.5); tail, 65.5–68 (66.5); culmen, 9–9.5 (9.2); tarsus, 15.5–16.5 (15.8); middle toe, 8.5–9.5 (9).^c

Adult female.—Wing, 65.5–69.5 (67.5); tail, 63–68 (65.5);^d culmen, 9;^e tarsus, 16;^e middle toe, 8.^e

Northern Alaska (St. Michael, valley of Kowak River, etc.) and eastward to northern Mackenzie (Fort Anderson, breeding); shores of Okhotsk Sea, northeastern Asia?^f

Parus cinctus (not of Boddaert) RIDGWAY, Bull. Nutt. Orn. Club, ii, Jan., 1878, 37 (St. Michael, Alaska); Proc. U. S. Nat. Mus., iii, 1880, 13, 168, 215, 230 (do); Nom. N. Am. Birds, 1881, no. 44.—ALLEN, Bull. Nutt. Orn. Club, v,

^aThe type now in the United States National Museum collection. The only reason for considering this specimen different from *P. gambeli* consists in its dusky coloration, obviously caused by contact with charred trees.

^bSee foot note on page 396.

^cThree specimens.

^dTwo specimens.

^eOne specimen.

^fSpecimens from the Asiatic side not seen, but the above locality (Okhotsk) given by Prazák in his original description.

- 1880, 89.—COUES, Check List, 2d ed., 1882, no. 52.—McLENNAN, Cruise "Corwin," 1884, 113 (Kowak R., Alaska).
- P[arus] cinctus* COUES, Key N. Am. Birds, 2d ed., 1884, 267.
- Parus cinctus oblectus* (not *Parus oblectus* Cabanis) RIDGWAY, Proc. U. S. Nat. Mus., viii, Sept. 2, 1885, 354.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 739.—MACFARLANE, Proc. U. S. Nat. Mus., xiv, 1891, 445 (Fort Anderson, Mackenzie, breeding; descr. nest).
- P[arus] cinctus oblectus* RIDGWAY, Man. N. Am. Birds, 1887, 564.
- P[arus]* (*Poecile*) *cinctus oblectus* HELLMAYR, Tierreich, 18 Lief., Mar., 1903, 70, part.
- Poecila oblecta alascensis* PRAZÁK, Orn. Jahrb., vi, Heft 2, Mar.-Apr., 1895, 92 (Alaska; Ochotsk).
- P[arus] cinctus alascensis* RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 564.
- Parus cinctus alascensis* AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xiv, 1897, 132.—GRINNELL (J.), Pacific Coast Avifauna, no. 1, 1900, 59 (Kowak R., Alaska).

PENTHESTES HUDSONICUS HUDSONICUS (Forster).

HUDSONIAN CHICKADEE.

Adults in spring and summer.—Pileum and hindneck plain, soft grayish brown (varying from drab or broccoli brown to pale sepia,^a darker on loreal and orbital regions; back, scapulars, lesser wing-coverts, rump, and upper tail-coverts hair brown, often much tinged with drab or broccoli brown, especially on back and scapulars; wings and tail dull slate color with slate-gray edgings, then becoming whitish on middle portion of longer primaries; rectal and suborbital regions white, gradually shading into pale gray on auricular region and this into clear gray (no. 6) or olive-gray on sides of neck; malar region, chin, and throat uniform sooty black; under parts of body white medially, the sides of chest shaded with gray, the sides and flanks cinnamon-brown, the under tail-coverts similar but paler; bill black; iris brown; legs and feet dusky (bluish gray in life).

Adults in autumn and winter.—Similar to the spring and summer plumage, but colors rather deeper.

Young.—Essentially like adults, but texture of plumage different (more lax) and color of sides and flanks paler and duller.

Adult male.—Length (skins) 117.5–137.5 (126.9); wing, 60–70 (66.2); tail, 58.5–70 (64.1); culmen, 8–9.5 (9); tarsus, 16–17.5 (16.9); middle toe, 8.5–9.5 (9).^b

Adult female.—Length (skins), 117.5–132.5 (127.4); wing, 62.5–68

^a The average color is not closely approximated by any hue on plate iii of Ridgway's Nomenclature of Colors, that coming nearest being drab or broccoli brown, both of which are much too pale, except for specimens in considerably worn or faded plumage.

^b Nineteen specimens.

(65.3); tail, 60–65.5 (63.7); culmen, 8–9 (8.7); tarsus, 16–17.5 (16.7); middle toe, 8.5–9.5 (8.9).^a

From shores of Hudson Bay (including district of Ungava) north-westward to Alaska (north and west of Cook Inlet) as far as valley of Kowak River.

Parus hudsonicus FORSTER, Philos. Trans., lxii, 1772, 383, 408, 430 (Severn R., Hudson Bay).—"MILLER, Cimel. Phys., 1796; pl. xxi, A" (Gray).—BONNATERRE and VIEILLOT, Enc. Méth., ii, 1823, 509.—AUDUBON, Orn. Biog., ii, 1834, 543, part, pl. 194; Synopsis, 1839, 79, part; Birds Am., oct. ed., ii, 1841, 155, part, pl. 128.—NUTTALL, Man. Orn. U. S. and Can., 2d ed., 1840, 266.—CASSIN, Illustr. Birds California, Texas, etc., 1853, 18, part.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 395, part; Cat. N. Am., Birds, 1859, no. 296, part; Review Am. Birds, 1864, 82, part.—BLAKISTON, Ibis, 1862, 5 (bet. Hudson Bay and Lake Winnipeg).—DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 280 (Nulato, Alaska).—COUES, Check List, 1873, no. 33, part; 2d ed., 1882, no. 49, part.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 105, part.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 45, part; Orn. Illinois, i, 1889, 82 (Rock Island, Illinois, accidental).—McLENNAGAN, Cruise "Corwin," 1884, 114 (Kowak R.).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 34 (Fort Simpson).—TURNER, Proc. U. S. Nat. Mus., viii, 1885, 236 (Davis Inlet and Fort Chimo, Ungava, resident).—SEYON, Auk, iii, 1886, 327 (Porcupine Mts. and Winnipeg Basin, Manitoba).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 740, part.—TOWNSEND, Auk, iv, 1887, 13 (Kowak R., Alaska).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1890, 632 (n. and e. Manitoba, resident).—NUTTING, Bull. Labr. N. H. State Univ., Iowa, ii, 1893, 279 (Grand Rapids, lower Saskatchewan).—RHODES, Auk, x, 1893, 327 (crit.; geog. range).—FLEMING, Auk, xviii, 1901, 45 (Port Sydney, n. Ontario, 2 specs., Nov., 1892).—CHAPMAN, Bull. Am. Mus. N. H., xvi, 1902, 245 (w. side Hudson Bay to lower Yukon; diagn.; crit.).—PREBLE,

^a Ten specimens.

Specimens from different geographic areas average, respectively, as follows:

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Middle toe.
MALES.					
Nine adult males from Ungava (Fort Chimo).....	66.1	62.5	8.7	17	9.1
Three adult males from Athabasca	66.5	65.3	9.5	17	9
Six adult males from Yukon Valley, Alaska	66.1	65.1	9.3	17	9
One adult male from Kowak River, Alaska.....	66.5	69	9.5	16	9
FEMALES.					
Five adult females from Ungava.....	65.8	63.3	8.6	16.9	9.1
Two adult females from Athabasca	64.5	63.5	9	16	8.5
One adult female from Nushagak, Alaska	63.5	65	9	16.5	8.5
One adult female from Nulato, Alaska.....	68	64.5	8.5	17.5	9
One adult female from Kowak River, Alaska.....	64	64.5	9	17	9

I am not able to discern any difference in coloration between the several series, except that those from Ungava are possibly a little darker than the others, while several specimens from Fort Simpson and Fort Rae, Mackenzie, are a little paler and browner. The latter (not included in the above measurements) are, however, very old skins, and their paler and browner coloration may be due to fading.

- North Am. Fauna, no. 22, 1902, 129 (Echimamish, Robinson Portage, Oxford House, Knee Lake, York Factory, and Hill R., Kewatin).
- [*Parus*] *hudsonicus* LATHAM, index Orn., i, 1790, 566.—GRAY, Hand-list, i, 1869, 232, no. 3359.—COUES, Key N. Am. Birds, 1872, 81, part.
- P[arus] hudsonicus* NELSON, Bull. Essex Inst., viii, 1876, 95 (Rock Island, n. w. Illinois; n. e. Illinois, rare winter visitant; Racine, Wisconsin (1 spec., Jan., 1852).—COUES, Key N. Am. Birds, 2d ed., 1884, 267, part.—RIDGWAY, Man. N. Am. Birds, 1887, 564, part.
- P[arus] (Poecile) hudsonicus hudsonicus* HELLMAYR, Tierreich, 18 Lief., Mar., 1903, 71, part
- P[arus] h[udsonicus] evura* COUES, Key N. Am. Birds, 2d ed., 1884, 267 (Alaska; neither type locality nor type specified).
- Parus hudsonicus evura* RHOADS Auk, x, Oct., 1893, 331 (descr., crit., etc.).—BISHOP, N. Am. Fauna, no. 10, 1900, 93 (Caribou Crossing, Lake Tagish, Lake Lebarge, St. Michael, etc., Alaska); Auk, xvii, 1900, 118 (crit.).—GRINNELL (J.), Pacific Coast Avifauna, no. 1, 1900, 60 (Kowak R., Alaska; habits; crit.).—MCGREGOR, Condor, iv, 1902, 144 (Signal Cairn, Norton Sound, Alaska).
- P[arus] (Poecile) hudsonicus evura* HELLMAYR, Tierreich, 18 Lief., Mar., 1903, 72.
- Parus hudsonicus ungava* RHOADS, Auk, x, Oct., 1893, 328 (Fort Chimo, Ungava; coll. U. S. Nat. Mus.).
- Parus hudsonicus littoralis* (not of Bryant) CHAPMAN, Bull. Am. Mus. N. H., xvi, 1902, 245, part (Ungava).
- Parus stoneyi* RIDGWAY, Man. N. Am. Birds, 1887, 591, 592 (Kowak R., n. w. Alaska; coll. U. S. Nat. Mus.).—CHAPMAN, Auk, v, 1888, 400.
- Parus hudsonicus stoneyi* AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, First Suppl. to Check List, 1889, 17; Check List, 2d ed., 1895, no. 740 a.—RHOADS, Auk, x, 1893, 24, 330 (crit.; range).—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 611.—CHAPMAN, Bull. Am. Mus. N. H., xvi, 1902, 245 (diagnosis; Kowak R.).
- P[arus] (Poecile) hudsonicus stoneyi* HELLMAYR, Tierreich, 18 Lief., Mar., 1903, 72.

PENTHESTES HUDSONICUS COLUMBIANUS (Rhoada).

COLUMBIAN CHICKADEE.

Similar to *P. h. hudsonicus*, but slightly darker and less brown above, especially the pileum and hindneck; chin and throat more decidedly black; bill relatively larger.

Adult male.—Length (skins), 117.5–140.5 (128.7); wing, 63–69 (66); tail, 61–66.5 (64); culmen, 8.5–10 (9.6); tarsus, 16–17.5 (17); middle toe, 9–9.5 (9.2).^a

Adult female.—Length (skins), 120–127.5 (124.3); wing, 64–68.5 (65.6); tail, 61.5–66.5 (63.4); culmen, 9–9.5 (9.1); tarsus, 16.5–17.5 (16.9); middle toe, 8.5–9.5 (9.1).^b

Northern Rocky Mountain district, from interior of British Columbia (Field, Eagle Pass, Toad Mountain, etc.); northern Montana (St. Marys Lakes), and Alberta (Edmonton, Smoke Valley, Grand Cache, Whitemud, etc.), to Kenai Peninsula, Alaska.

^a Thirteen specimens.

^b Five specimens.

Parus hudsonicus columbianus RHOADS, Auk, x, Jan., 1893, 23 (Field, British Columbia; coll. S. N. Rhoads), 331 (Field, Eagle Pass, and Toad Mt., British Columbia; St. Marys Lakes, n. Montana; crit., etc.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 2d ed., 1895, no. 740b.—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 611.—BROOKS, Auk, xvii, 1900, 107 (e. British Columbia, w. to Nicola).—CHAPMAN, Bull. Am. Mus. N. H., xvi, 1902, 244, 245 (Homer, Cook Inlet, Alaska, to British Columbia; crit.; diagnosis).—BAILEY (Florence M.) Handb. Birds W. U. S., 1902, 459.

P[arus] (Poecile) hudsonicus columbianus HELLMAYR, Tierreich, 18 Lief., Mar., 1903, 72.

Parus hudsonicus (not of Forster) OSGOOD, North Am. Fauna, no. 21, 1901, 80 (Tyonek, Hope, Fort Kenai, etc., Cook Inlet, Alaska; crit.).

PENTHESTES HUDSONICUS LITTORALIS (Bryant).

ACADIAN CHICKADEE.

Similar to *P. h. hudsonicus*, but smaller and with the upper parts slightly browner.

Adult male.—Length (skins), 111–129 (122.5); wing, 58.5–66.5 (63.9); tail, 54.5–64.5 (60.6); culmen, 8–9 (8.6); tarsus, 15.5–17.5 (16.9); middle toe, 8.5–9.5 (9.2).^a

Adult female.—Length (skins), 117.5–127 (122.1); wing, 59–63 (60.8); tail, 56–61.5 (59.1); culmen, 8.5–9.5 (8.7); tarsus, 16–17 (16.4); middle toe, 8.5–9 (8.8).^b

Southeastern British Provinces (southern Labrador, Quebec, New Brunswick, Nova Scotia, etc.) and extreme northeastern United States, Maine, mountains of New Hampshire, Vermont, and northeastern New York (Lewis County); casually or irregularly southward to Massachusetts (numerous records), Rhode Island (near Providence), and Connecticut (New Haven).

Parus hudsonicus (not of Forster) AUDUBON, Orn. Biog., ii, 1834, 534, part, pl. 194; Synopsis, 1839, 79, part; Birds Am., oct. ed., ii, 1841, 155, part, pl. 128.—CASSIN, Illustr. Birds, Cal., Tex., etc., 1853, 18, part.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 395, part; Review Am. Birds, 1864, 82, part (Nova Scotia).—COUES, Check List, 1873, no. 33, part; 2d ed., 1882, no. 49, part.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 105, part, pl. 7, fig. 7.—BREWSTER, Am. Nat., vi, 1872, 306 (Concord, Massachusetts, 1 spec., Oct. 30, 1870); Bull. Nutt. Orn. Club, iii, 1878, 20 (descr. young); vi, 1881, 54 (Concord, Massachusetts, 1 spec., Oct. 7, 1880).—MERRIAM, Bull. Nutt. Orn. Club, i, 1876, 52 (New Haven, Connecticut, 1 spec., Nov. 13, 1875); vi, 1881, 226 (Lewis Co., n. e. New York; breeding?).—BREWER, Proc. Bost. Soc. N. H., xix, 1878, 302 (New England records).—SPELMAN, Bull. Nutt. Orn. Club, vi, 1881, 114 (Cambridge, Massachusetts, 1 spec., Dec. 31, 1880).—JENCKS, Bull. Nutt. Orn. Club, vi, 1881, 54 (near Providence, Rhode Island, 1 spec., Nov. 1, 1880).—CHAMBERLAIN, Bull. Nutt. Orn. Club, viii, 1883, 10 (Edmundston and St. John, New Brunswick, breeding); Canad. Nat., iii, 215–217 (biography); Auk, iv, 1887, 261 (St.

^a Twelve specimens.

^b Ten specimens.

John, New Brunswick; nesting habits).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 740, part.—ALLEN, Bull. Am. Mus. N. H., i, 1886, 261 (Massachusetts records).—CHADBOURNE, Auk, iv, 1887, 107 (White Mts., New Hampshire, above 3,000 ft.); xiii, 1896, 346 (Plymouth, Massachusetts, 1 spec., June 5, 1896).—FAXON and ALLEN, Auk, v., 1888, 153 (Mount Lafayette, New Hampshire, 3,900 ft.; 2 specs., July 12).—BISHOP, Auk, vi, 1889, 149 (Magdalen Islands, breeding).—RALPH and BAGG, Auk, vii, 1890, 232 (Remsen, Oneida Co., New York; 1 spec., Dec. 25, 1886).—KIMBALL, Auk, vii, 1890, 291 (Worcester Co., Massachusetts, 1 spec., Mar. 17, 1890).—FAXON, Auk, vii, 1890, 407 (Sutton, Vermont, several young, Aug. 16, 1889; Arlington, Massachusetts, Oct. 18 and Nov. 17 to Apr. 5).—DWIGHT, Auk, x, 1893, 14 (Prince Edward I., breeding).—ALLEN (F. H.), Auk, xiii, 1896, 345 (Stratton Mt., Vermont, 3,800 ft., June 29).—FAXON and HOFFMANN, Birds Berkshire Co., Massachusetts, 1900, 12 (Graylock Mt., 1 spec., Dec., 1889).

[*Parus*] *hudsonicus* COUES, Key N. Am. Birds, 1872, 81, part.

P[arus] hudsonicus COUES, Key N. Am. Birds, 2d ed., 1884, 267, part.—RIDGWAY, Man. N. Am. Birds, 1887, 564, part.

P[arus] (Poecile) hudsonicus hudsonicus HELLMAYR, Tierreich, 18 Lief., Mar., 1903, 71, part.

Parus hudsonicus, var. *littoralis* BRYANT, Proc. Bost. Soc. N. H., ix, 1865, 368 (Yarmouth, Nova Scotia).

Parus hudsonicus littoralis CHAPMAN, Bull. Am. Mus. N. H., xvi, Aug. 18, 1902, 245, part (diagnosis; geog. range).

PENTHESTES RUFESCENS RUFESCENS (Townsend).

CHESTNUT-BACKED CHICKADEE.

Adults in spring and summer.—Pileum and hindneck plain sepia brown, becoming darker along lateral margin, the lores and post-ocular region dark sooty brown or blackish; back, scapulars, and rump plain chestnut; upper tail-coverts and lesser wing-coverts brownish gray or hair brown, the latter more or less tinged with chestnut; wings and tail deep brownish gray with paler gray edgings, these broader and paler (sometimes nearly white) on tertials and terminal portion of greater wing-coverts; malar region, chin, throat, and upper part of chest uniform dark sooty brown, abruptly defined posteriorly; sides and flanks (broadly) chestnut; under parts of body otherwise (medially) white; under tail-coverts more or less tinged with brown; bill dusky; iris brown; legs and feet dusky brownish (grayish in life?).

Adults in autumn and winter.—Similar to the spring and summer plumage, but brown of pileum and hindneck darker, more sooty, sometimes nearly clove brown.

Young.—Similar to adults, but chestnut of back, etc., duller and that of sides and flanks both duller and paler.

Adult male.—Length (skins), 107.5–120.5 (112); wing, 59.5–64

(61.2); tail, 46.5–51.5 (49.1); culmen, 8–10 (9.1); tarsus, 16–17 (16.6); middle toe, 9.5–10.5 (10).^a

Adult female.—Length (skins), 100–112 (107); wing, 53.5–60.5 (58.4); tail, 43.5–48.5 (46.2); culmen, 9–10 (9.7); tarsus, 16–17 (16.4); middle toe, 9.5–10 (9.7).^b

Pacific coast district, from northern California (Sonoma County) to Prince William Sound and head of Lynn Canal, Alaska; east to Montana (Great Falls).

Parus rufescens TOWNSEND, Journ. Ac. Nat. Sci. Phila., vii, pt. ii, 1837, 190 (Columbia R.; type in coll. U. S. Nat. Mus.).—AUDUBON, Orn. Biog., iv, 1838, 371, pl. 353; Synopsis, 1839, 80; Birds Am., oct. ed., ii, 1841, 158, pl. 129.—NUTTALL, Man. Orn. U. S. and Can., 2d ed., 1840, 267.—CASSIN, Illustr. Birds Cal., Tex., etc., 1853, 18, part.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 394, part (Fort Steilacoom and Fort Vancouver, Washington; Columbia R.); Cat. N. Am. Birds, 1859, no. 295, part; Review Am. Birds, 1864, 83, part (Chiloweyuck, Camp Kootenay, Fort Vancouver, Simiahmoo, and Fort Steilacoom, Washington; Columbia R.).—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 194, part (Steilacoom, etc., Washington).—SCLATER, Cat. Am. Birds, 1862, 14 (Fort Steilacoom).—DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 280 (Sitka, Alaska).—COOPER, Am. Nat., iii, 1869, 75 (Montana); Orn. Cal., 1870, 47, part.—COUES, Check List, 1873, no. 34, part; 2d ed., 1882, no. 50; Birds N. W., 1874, 22, part.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 104, part, pl. 7, fig. 6.—HENSHAW, Orn. Rep. Wheeler's Surv., 1879, 288 (w. side of Cascade Range, Oregon).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 46.—GADOW, Cat. Birds Brit. Mus., viii, 1883, 34, part (Alaska; w. side Rocky Mts.; Vancouver I.; Upper Klamath L., Oregon).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 741.—ANTHONY, Auk, iii, 1886, 171 (Washington Co., Oregon; descr. nest).—TOWNSEND, Proc. U. S. Nat. Mus., x, 1887, 229 (Mount Shasta, California).—FANNIN, Check List Birds Brit. Col., 1891, 44 (w. side of Cascade Range).—MERRILL (J. C.), Auk, xv, 1898, 21 (Fort Sherman, Idaho; resident).—GRINNELL (J.), Auk, xv, 1898, 130 (Sitka, Alaska).—KOBBE, Bull. Cooper Orn. Club, i, 1899, 84 (Cape Disappointment, Washington; habits; descr. nest and eggs).—FISHER (W. K.), Condor, ii, 1900, 138 (Mount St. Helena, Napa Co., California); iv, 1902, 135 (redwood belt, Humboldt and Del Norte counties).—CHAPMAN, Bull. Am. Mus. N. H., iii, 1900, 153 (coast British Columbia).—BISHOP, North Am. Fauna, no. 19, 1900, 93 (Haines, Skagway, and Glacier, Alaska).—RATHBUN (S. F.), Auk, xix, 1902, 140 (Seattle, Washington, resident).—BAILEY (Florence, M.), Handb. Birds W. U. S., 1902, 459.

P[arus] rufescens HENSHAW, Orn. Rep. Wheeler's Surv., 1879, 288 (w. side of Cascade Range, Oregon).—COUES, Key N. Am. Birds, 2d ed., 1884, 267.—RIDGWAY, Man. N. Am. Birds, 1887, 564.

[Parus] rufescens GRAY, Hand-list, i, 1869, 232, no. 3358.—COUES, Key N. Am. Birds, 1872, 81, part.

Parus rufescens rufescens GRINNELL (J.), Pacific Coast Avifauna, no. 3, June 25, 1902, 71.

[Parus rufescens] α. rufescens RIDGWAY, Proc. U. S. Nat. Mus., i, May 22, 1879, 486 (synonymy).

^aTen specimens.

^bSeven specimens.

[*Poecila*] *rufescens* BONAPARTE, Consp. Av., i, 1850, 230.

P[arus] (*Poecile*) *rufescens rufescens* HELLMAYR, Tierreich, 18 Lief., Mar., 1903, 73.

Parus sitchensis KITTLITZ, in Lutké's Voy. Le Seniavine, 1836, 268, in text (Sitka, Alaska; nomen nudum); Denkw., i, 1858, 200 (nomen nudum).

PENTHESTES RUFESCENS NEGLECTUS (Ridgway).

NICASIO CHICKADEE.

Similar to *P. r. rufescens* but with much less of chestnut on sides and flanks, which exteriorly are pale gray, the chestnut also paler and duller.

Adult male.—Length (skins), 105–114.5 (110.7); wing, 58–64 (60.8); tail, 48–52.5 (50.1); culmen, 9–9.5 (9.2); tarsus, 16.5–17 (16.7); middle toe, 9.5–10 (9.8).^a

Adult female.—Length (skin), 108.5; wing, 58; tail, 46.5; culmen, 9; tarsus, 16.5; middle toe, 9.5.^b

Marin County, California.

Parus rufescens (not of Townsend) BREWSTER, Bull. Nutt. Orn. Club, iii, 1878, 20 (Nicasio, Marin Co., California; descr. young).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 34, part (California).

Parus rufescens *β. neglectus* RIDGWAY, Proc. U. S. Nat. Mus., i, May 22, 1879, 485 (Nicasio, Marin Co., California; coll. U. S. Nat. Mus.).

[*Parus rufescens*] *β. neglectus* RIDGWAY, Proc. U. S. Nat. Mus., i, 1879, 486 (synonymy).

Parus rufescens neglectus ALLEN, Bull. Nutt. Orn. Club, v, Apr., 1880, 89.—RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 169, 215; Nom. N. Am. Birds, 1881, no. 46a.—COUES, Check List, 2d ed., 1882, no. 51.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 741a, part.—GRINNELL (J.), Pacific Coast Avifauna, no. 3, 1902, 71.

P[arus] rufescens neglectus RIDGWAY, Man. N. Am. Birds, 1887, 564, part.

P[arus] r[ufescens] neglectus? COUES, Key N. Am. Birds, 2d ed., 1884, 267.

P[arus] r[ufescens] neglectus BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 459.

P[arus] (*Poecile*) *rufescens neglectus* HELLMAYR, Tierreich, 18 Lief., Mar., 1903, 73, part.

PENTHESTES RUFESCENS BARLOWI (Grinnell).

BARLOW'S CHICKADEE.

Similar to *P. r. neglectus*, but sides and flanks wholly pale gray (very rarely with a faint rusty tinge on outer posterior portion of flanks).

Adult male.—Length (skins), 108.5–115 (112.6); wing, 57–64 (60.1); tail, 46–54 (50.3); culmen, 9–10 (9.2); tarsus, 16–16.5 (16.3); middle toe, 9.5–10.5 (10.1).^c

Adult female.—Length (skins), 108–114 (111.4); wing, 57–61.5 (59.4); tail, 48.5–52 (50.2); culmen, 8.5–9.5 (8.9); tarsus, 15.5–16.5 (16.1); middle toe, 9.5–10 (9.8).^d

^a Five specimens.

^b One specimen.

^c Ten specimens.

^d Seven specimens.

Middle coast district of California, south of San Francisco Bay, in San Francisco, Santa Clara, Santa Cruz, and Monterey counties (accidental in Alameda County).

Parus rufescens (not of Townsend) GAMBEL, Proc. Ac. Nat. Sci. Phila., 1847, 155 (Monterey, California).—HEERMANN, Journ. Ac. Nat. Sci. Phila., 2nd ser., ii, 1852, 364 (near San Francisco); Rep. Pacific R. R. Surv., x, pt. iv, 1859, 42, part (San Francisco).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 394, part, (San Francisco); Cat. N. Am. Birds, 1859, no. 295, part; Review Am. Birds, 1864, 83, part (San Francisco).—COOPER, Orn. Cal., 1870, 47, excl. syn. (mountains of Santa Cruz Co., California).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 104, part (San Francisco; Monterey); iii, 1874, 502 (Santa Cruz, California; descr. nest and eggs).

P[arus] rufescens GAMBEL, Journ. Ac. Nat. Sci. Phila., ii, 1847, 36 (Monterey).

Parus rufescens neglectus (not of Ridgway) AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 741a, part (Monterey Co., California).—FISHER (A. K.), North Am. Fauna, no. 7, 1893, 140 (Boulder Creek, Monterey Co.).—EMERSON, Condor, ii, 1900, 19 (Haywards, Alameda Co., California, Dec.).

Parus rufescens barlowi GRINNELL (J.), Condor, ii, Nov., 1900, 127 (Stevens Creek Cañon, Santa Clara Co., California; coll. J. Grinnell); Pacific Coast Avifauna, no. 3, 1902, 71.—ALLEN, Auk, xviii, 1901, 178 (publication of original descr.).

P[arus] (Poecile) rufescens barlowi HELLMAYR, Tierreich, 18 Lief., Mar., 1903, 73, part.

Genus AURIPARUS Baird.

Auriparus BAIRD, Review Am. Birds, Aug., 1864, 85. (Type, *Agithalus flaviceps* Sundevall.)

Very small Paridæ, with conical, acute bill; the outermost (tenth) primary much less than half as long as ninth; plumage without any black, but adults with head partly yellow and lesser wing-coverts bright reddish chestnut.

Bill much shorter than head (exposed culmen about half as long as tarsus, but shorter than middle toe without claw), with nearly straight outlines and acute tip; culmen very faintly curved terminally. Nostrils as in *Bæolophus* and *Penthestes*, but antrorse latero-frontal feathers less produced. Rictal bristles obsolete. Wing rather long, but rounded; eighth, seventh, and sixth primaries longest, usually the eighth; ninth primary equal to or longer than fourth, much more than twice (nearly three times) as long as tenth, which is very small and narrow. Tail nearly as long as wing, slightly rounded. Tarsus about twice as long as exposed culmen, decidedly longer than middle toe with claw, less than one-third as long as wing, the acrotarsium distinctly scutellate; outer toe slightly longer than inner, its claw reaching about to base of middle claw; hallux (without claw) about as long as inner toe (without claw), but stouter, its claw much shorter than the digit;

basal phalanx of middle toe adherent to outer toe for more than half its length, entirely adherent to inner toe.

Coloration.—Above plain brownish gray, beneath plain grayish white; adults with head partly yellow and lesser wing-coverts reddish chestnut.

Nidification.—Nest among twigs of thorny trees or bushes, globular or retort-shaped, very bulky, composed of thorny twigs, with entrance a small hole in side; eggs pale greenish blue speckled with reddish brown.

Range.—Arid Lower Sonoran district of Nearctic Region. (Monotypic.)

While evidently related to the Palearctic genus *Remiza*,^a *Auriparus* is very distinct, having the bill broader with tip less attenuate, the tail rounded instead of emarginate, the outermost (tenth) primary much larger (in *Remiza* it is almost rudimentary), and the style of coloration very different.

AURIPARUS FLAVICEPS FLAVICEPS (Sundevall).

VERDIN.

Adult male.^b—Head dull gamboge or wax yellow, clearer yellow on malar region, chin, and throat (where the yellow sometimes extends over upper chest), more olivaceous on crown and occiput, the posterior portion of forehead sometimes tinged with orange-rufous (rarely with a distinct though partially concealed spot of this color); hindneck, back, scapulars, rump, and upper tail-coverts plain brownish gray (between smoke gray and hair brown), the rump usually more or less tinged with yellowish olive; wings and tail decidedly darker with pale brownish gray or grayish brown edgings, the lesser wing-coverts uniform bright reddish chestnut or bay; underparts of body pale brownish gray, becoming nearly white on lower abdomen and under tail-coverts, the median line sometimes faintly tinged with yellow; bill dusky horn color; iris brown?; legs and feet dusky (bluish gray in life); length (skins), 95–110 (107.6); wing, 50–55 (53); tail, 46–50 (47.9); exposed culmen, 8–9 (8.5); tarsus, 14.5–16 (15.4); middle toe, 8.5–10 (9.3).^c

Adult female.—Similar to the adult male, but averaging very slightly duller in color, especially the yellow of head; length (skins), 93–112

^a *Aegithalus* of authors (not *Aegithalos* Hermann, 1804), ex Boie, Isis, 1822, 556.—*Remiza* Stejneger, Proc. U. S. Nat. Mus., ix, sig. 25, Oct. 30, 1886, 387 (type, *Parus pendulinus* Linnæus).

^b There is no marked seasonal difference in coloration. In late spring and summer the plumage is more harsh, through abrasion, and the yellow of the head is possibly a little brighter, especially on the pileum.

^c Twenty-three specimens.

(101.8); wing, 49.5–53 (52.5); tail, 43.5–48 (46.3); exposed culmen, 8–9.5 (8.7); tarsus, 14.5–16 (15.4); middle toe, 8–10 (9.1).^a

Young.—Essentially similar to adults, but without yellow on head or chestnut on lesser wing-coverts; whole pileum, together with lesser wing-coverts, uniform grayish brown (hair brown), concolor with back, etc.; malar region, chin, throat, and upper chest very pale brownish gray, the sides of head similar, but slightly darker; mandible pale-colored, at least basally.

Southern Texas (north to Refugio and Bexar counties), New Mexico, Arizona, southwestern Utah, southern Nevada (Great Bend of Colorado River), and southern California (San Bernardino and San Diego counties), northern Lower California, and Mexican States of Sonora (except southern portion), Chihuahua, Durango, Coahuila, Nuevo Leon, and Tamaulipas.

Aegithalus flaviceps SUNDEVALL, Öfv. K. Vet.-Akad. Förh. Stockh., vii, 1850, 129 ("Sitka or California").—HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 43 (Fort Yuma and m. Mojave R., s. e. California).

Aegithalus flaviceps GADOW, Cat. Birds Brit. Mus., viii, 1883, 72, part ("California").

Psaltria flaviceps SCLATER, Proc. Zool. Soc. Lond., 1856, 37 (crit.); Ann. and Mag. N. H., 2d ser., xix, 1857, 92, 93 (do.).

Paroides flaviceps BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 400; ed. 1860 (Birds N. Am.), atlas, pl. 53, fig. 2; Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 14, pl. 15, fig. 2 (El Paso, Texas; Saltillo, Nuevo Leon); Cat. N. Am. Birds, 1859, no. 300; in Rep. Ives' Expl. Col. R., pt. v, 1861, 6 (Fort Yuma).—BUTCHER, Proc. Ac. Nat. Sci. Phila., 1868, 149 (Laredo, Texas).

^a Fourteen specimens. Specimens from different geographic areas average, respectively, as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Ten adult males from Rio Grande Valley	53.8	48.5	8.7	15.5	9.6
Ten adult males from Arizona	52.7	47.7	8.3	15.4	9
Three adult males from southern California	51.3	46.3	8.3	15.2	9.2
Ten adult males (of <i>A. f. lamprocephalus</i>) from Cape St. Lucas.....	50.6	42	8.8	14.9	9
Three adult males (of <i>A. f. lamprocephalus</i>) from southern Sonora.....	49.8	43	8.3	14.3	9
One adult male from Durango (Ciudad Durango).....	52	47	9.5	15.5	9.5
One adult male from Coahuila (Monclova)	54	48	9	15.5	9
FEMALES.					
Seven adult females from Rio Grande Valley.....	51.7	46.4	9.1	15.3	9.3
Seven adult females from Arizona and northern Sonora...	52.1	46.1	8.3	15.4	8.9
Six adult females (of <i>A. f. lamprocephalus</i>) from Cape St. Lucas.....	48.9	41.2	8.8	14.7	9.2

Specimens from Arizona, northern Sonora, and southern California are apparently very slightly paler and possibly a little browner than those from the Rio Grande Valley, but I am unable to detect any decided difference in coloration.

Psaltiriparus flaviceps SCLATER, Cat. Am. Birds, 1862, 13 (Texas).

Auriparus flaviceps BAIRD, Review Am. Birds, Aug., 1864, 85, part.—COUES, Proc. Ac. Nat. Sci. Phila., xviii, 1866, 79 (Arizona); 1868, 83 (do.); Check List, 1873, no. 37, part; 2d ed., 1882, no. 56, part; Birds Col. Val., 1878, 129, part.—COOPER, Am. Nat., iii, 1869, 474, in text (Fort Mojave, California); Orn. Cal., 1870, 51, part.—BAIRD, BREWER, AND RIDGWAY, Hist. N. Am. Birds, i, 1874, 112, pl. 7, fig. 11.—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 99 (Camp Goodwin and Gila R., Arizona), 155 (Arizona); Zool. Exp. W. 100th Merid., 1875, 173 (Camp Lowell, Camp Goodwin, and Gila R., Arizona).—SENNETT, Bull. U. S. Geol. and Geog. Surv. Terr., iv, no. 1, 1878, 6 (Hidalgo, Texas; habits, etc.); v, no. 3, 1879, 378-381 (Lomita, Texas; nesting habits, crit., measurements, etc.).—MERRILL (J. C.), Proc. U. S. Nat. Mus., i, 1878, 121 (Edinburg, Texas; descr. nest).—SALVIN AND GODMAN, Biol. Centr.-Am., Aves, i, 1880, 59 (Saltillo, Nuevo Leon, etc.).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 50, part.—BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 81 (Cienega Station and Tucson, California).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 746, part.—BECKHAM, Proc. U. S. Nat. Mus., x, 1887, 693 (San Antonio, Texas, Dec., Jan.).—MORCOM, Bull. Ridgway Orn. Club, no. 2, 1887, 55 (Coahuila Valley, San Bernardino Co., California, breeding; descr. nests).—COOKE, Bird Migr. Miss. Val., 1888, 278 (San Antonio, resident).—SCOTT (W. E. D.), Auk, v, 1888, 166 (s. Arizona, up to 4,000 ft.).—ATTWATER, Auk, ix, 1892, 344 (San Antonio, Texas, resident; descr. nests).—FISHER (A. K.), N. Am. Fauna, no. 7, 1893, 142 (Amargosa R., s. e. California; Great Bend Colorado R., Nevada; s. w. Utah).—ALLEN, Bull. Am. Mus. N. H., v, 1893, 41 (Granados and Bacadehuachy, n. Sonora).—CARROLL, Auk, xvii, 1900, 348 (Refugio Co., Texas, summer resid.).—GILMAN, Condor, iv, 1902, 88 (San Geronimo Pass, s. California, breeding).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 462.

[*Auriparus*] *flaviceps* COUES, Key N. Am. Birds, 1872, 82, part.

A[uriparus] *flaviceps* COUES, Key N. Am. Birds, 2d ed., 1884, 269, part.—RIDGWAY, Man. N. Am. Birds, 1887, 565, part.

[*Parus*] *flavifrons* GRAY, Hand-list, i, 1869, 234, no. 3394.

A[nthoscopus] *flaviceps flaviceps* HELLMAYR, Tierreich, 18 Lief., Mar., 1903, 134.

Conirostrum ornatum LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., v, 1852, 112, pl. 5, fig. 1 (Rio Grande, Texas; coll. G. N. Lawrence).—BAIRD, in Stansbury's Rep. Great Salt Lake, 1852, 327 (Texas).—McCOWN, Ann. Lyc. N. Y., vi, 1853, 9 (Texas).

AURIPARUS FLAVICEPS LAMPROCEPHALUS Oberholser.

CAPE VERDIN.

Similar to *A. f. flaviceps* but decidedly smaller (except bill), with yellow of head averaging brighter, and the forehead more frequently (?) tinged with orange-rufous; young, however, distinctly different in coloration from that of *A. f. flaviceps*, the upper parts being olive, strongly tinged with olive-green, and the under tail-coverts (sometimes most of under parts) tinged with olive-yellow.

Adult male.—Length (skins), 90.5-99.5 (94.8); wing, 48.5-52 (50.6); tail, 39.5-44 (42); exposed culmen, 8.5-9.5 (8.8); tarsus, 14.5-15.5 (14.9); middle toe, 8-10 (9).^a

^aTen specimens, from Cape St. Lucas district.

Adult female.—Length (skins), 85–100 (93.5); wing, 47–51 (48.9); tail, 39–44 (41.2); exposed culmen, 8–9.5 (8.8); tarsus, 14–15 (14.7); middle toe, 9–9.5 (9.2).^a

Cape St. Lucas district of Lower California (San José del Cabo, Triunfo, La Paz, Concepcion Bay, Santa Margarita Island, etc.), and opposite parts of southern Sonora (Guaymas, Alamos, Batomotal, etc.).^b

Paroides flaviceps (not *Aegithalus flaviceps* Sundevall) BAIRD, Proc. Ac. Nat. Sci. Phila., 1859, 301, 304 (Cape St. Lucas, Lower California).

Auriparus flaviceps BAIRD, Review Am. Birds, 1864, 85, part (Cape St. Lucas).—COOPER, Orn. Cal., 1870, 51, part (Cape St. Lucas).—COUES, Check List, 1873, no. 37, part; 2d ed., 1882, no. 56, part; Birds. Col. Val., 1878, 129, part.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 112, part.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 50, part.—BELDING, Proc. U. S. Nat. Mus., vi, 1883, 343 (Guaymas, Sonora), 534 (Cape St. Lucas).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 746, part.—TOWNSEND, Proc. U. S. Nat. Mus., xiii, 1890, 137 (Cape St. Lucas).

[*Auriparus*] *flaviceps* COUES, Key N. Am. Birds, 1872, 82, part.

A[uriparus] flaviceps COUES, Key N. Am. Birds, 2d ed., 1884, 269, part.—RIDGWAY, Man. N. Am. Birds, 1887, 565, part.

Aegithalus flaviceps GADOW, Cat. Birds Brit. Mus., viii, 1883, 72, part (La Paz, Lower California).

Auriparus flaviceps lamprocephalus OBERHOLSER, Auk, xiv, Oct., 1897, 391 (Cape St. Lucas, Lower California; coll. U. S. Nat. Mus.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 126 (check list no. 746a).—BREWSTER, Bull. Mus. Comp. Zool., xli, 1902, 206 (Cape district, Lower California, except Sierra de la Laguna).

A[nthoscopus] flaviceps lamprocephalus HELLMAYR, Tierreich, 18 Lief., Mar., 1903, 135.

Genus PSALTRIPARUS Bonaparte.

Psaltriparus BONAPARTE, Compt. Rend., xxxi, Oct., 1850, 478. (Type, *P. personatus* Bonaparte, = *Parus melanotis* Hartlaub.)

Pyssaltriparus (typographical error) WESTERMANN, Bijds. Dierk., i, 1851, 16.

Psaltrides (emendation) CARANIS, Journ. für Orn., xxix, July, 1881, 333, in text.

Very small, slender Paridæ, with the bill much less than half as long as head (exposed culmen about equal to length of hallux without claw) and half as deep at base as long; tarsus about twice as long as middle toe without claw; tail longer than wing, much rounded or graduated, and coloration very plain (sometimes with black on sides of head).

Bill very small, much less than half as long as head (exposed culmen about as long as hallux without claw), much deeper than broad, its depth at base equal to more than half the length of exposed culmen; culmen strongly curved, gonys less so. Nostril small, roundish or broadly ovate, concealed by antrorse latero-frontal plumules. Rictal bristles minute, obvious only on close inspection. Wing rather long

^a Six specimens, from Cape St. Lucas district.

^b For comparative measurements of the Cape St. Lucas and Sonoran series see footnote on p. 421.

but much rounded; seventh, sixth, and fifth, or seventh to fourth, primaries longest, the eighth shorter than fifth (sometimes shorter than fourth), the ninth shorter than second (sometimes shorter than secondaries), the tenth about half as long as ninth. Tail longer than wing, the rectrices narrow but with broadly rounded tips, much rounded or graduated. Tarsus about twice as long as middle toe without claw, about one-third as long as wing, slender, the acrotarsium distinctly scutellate; outer toe slightly longer than inner, its claw reaching about to base of middle claw; hallux (without claw) about as long as outer toe, its claw shorter than the digit, strongly curved; basal phalanx of middle toe adherent to outer toe for greater part of its length to inner toe for same distance.

Coloration.—Above plain gray or olive (if the former, the pileum sometimes brownish, if the latter the pileum gray); beneath pale gray or whitish, sometimes tinged with buffy or vinaceous posteriorly; sides of head sometimes black.

Nidification.—Nest a very bulky purse-like structure, suspended to twigs of bushes or small trees, composed of moss, lichens, spiders' webs, and other soft materials, the entrance a small hole on one side near top. Eggs immaculate white.

Range.—Western United States and temperate parts of Mexico. (Four species.)

Among the Old World allies of *Psaltriparus* that I have been able to examine^a the form most nearly related is, apparently, *Acanthiparus* Gould^b from northern India. The type species of this genus is so similar in structural characters to *Psaltriparus* as to raise serious doubt as to whether their supposed generic difference can be maintained unless based chiefly on great difference in style of coloration. In *Acanthiparus*, however, the tail is shorter than the wing, instead of longer, and the rectrices relatively narrower; the tarsus and wing have the same relative length as in *Psaltriparus* (being as one to three); the wing-formula is essentially the same, while the relative size and shape of the bill are identical in the two genera; but in *Acanthiparus* the primaries, like the rectrices, are relatively narrower, and the adhesion of the anterior toes is apparently more extensive, involving the whole of the basal phalanx of the middle toe. The style of coloration is, in part, very different in the two groups, *Acanthiparus* having a large white patch on the forehead and fore part of crown, and the under parts of the body vinaceous-brown, darker across the breast, where abruptly contrasted with the pure white of the chest, throat, and sides of neck. The legs and feet are light brown, instead of black as in *Psaltriparus*.

^a I have not seen representatives of *Anthoscopus* Cabanis nor *Aegithalopsis* Heine.

^b *Acanthiparus* Gould, Birds of Asia, ii (pt. vii), 1855, pl. 67 (type, *A. niveogularis* Gould).

Aegithaliscus Cabanis,^a also of southeastern Asia (including northern India), is less nearly related to *Psaltriparus*, having the bill very much thicker. It is very near, however, to *Acanthiparus*, from which it otherwise differs chiefly in style of coloration, the pileum and hind-neck being rufous, in strong contrast with the gray back, and a black patch on the throat, and there is ground for doubt as to whether the two groups should be separated generically.

Aegithalos,^b another Palearctic genus, is still more remotely related to *Psaltriparus*, having the tail very much longer than the wing and graduated for half its length or more, the bill being short and deep, as in *Aegithaliscus*, but more compressed.

KEY TO THE SPECIES AND SUBSPECIES OF PSALTRIPARUS.

- a. With black on sides of head.
 - b. Entire side of head black.
 - c. Back, scapulars, and rump decidedly brown or olive.
 - d. Back, etc., olive-brown; under parts of body strongly buffy. (Southern Mexico and Guatemala.)...*Psaltriparus melanotis melanotis*, male (p. 426)
 - dd. Back, etc., olive or grayish olive; under parts of body dull white, very slightly, if at all, tinged with buff. (Central and western Mexico.)
Psaltriparus melanotis iulus, male (p. 428)
 - cc. Back, scapulars, and rump olive-gray. (Northern Mexico, southwestern Texas, southern New Mexico, and southern Arizona.)
Psaltriparus melanotis lloydi, male (p. 429)
 - bb. Side of head only partly black (the black usually confined to a patch on side of occiput, sometimes continued forward toward eye).
 - c. Back, etc., decidedly brown or olive.
 - d. Back, etc., olive-brown; under parts of body strongly buffy.
Psaltriparus melanotis melanotis, female (p. 426)
 - dd. Back, etc., olive or grayish olive; under parts of body dull white or but faintly tinged with buff*Psaltriparus melanotis iulus*, female (p. 428)
 - cc. Back, etc., olive-gray.
Psaltriparus melanotis lloydi, female and young male (p. 430)
- aa. Without any black on sides of head.
 - b. Pileum gray, like back, etc.
 - c. Averaging whiter beneath (especially on throat) and more olive-gray on back...*Psaltriparus melanotis lloydi*, some females and young (pp. 429, 430)
 - cc. Averaging more grayish and more uniform beneath, with back clearer gray. (Arid western United States, from eastern Oregon, Utah, and Wyoming to southwestern Texas, southeastern California, and northern parts of Sonora and Chihuahua.)*Psaltriparus plumbeus* (p. 430)

^a*Aegithaliscus* Cabanis, Mus. Hein., i, 1850, 90 (type, *Parus erythrocephalus* Vigors).

^b*Aegithalos* Hermann, Obs. Zool., i, 1804, 214 (type, *Pipra europæa* Hermann).
Mecistura Leach, Syst. Cat. Mam. and Birds Brit. Mus., 1816, 17 (type, *M. vagans* Leach=*Parus caudatus* Linnæus). *Acredula* Koch, Bayr. Zool., i, 1816, 199 (type, *Parus caudatus* Linnæus). *Paroides* Brehm, Isis, 1828, 1284 (type, *Parus caudatus* Linnæus). *Orites* (not of Keyserling and Blasius, 1840) Gray, List Gen. Birds, 1841, 32 (type, *Parus caudatus* Linnæus). See Stejneger, Proc. U. S. Nat. Mus., ix, 1886, 382, 383.

- bb. Pileum brown, very different from gray of back.
 c. Back, etc., darker and browner gray. (*Psaltriparus minimus*.)
 d. Darker, the sides and flanks strongly smoky brown.^a
 e. Darker. (Vicinity of Puget Sound, Washington; southern British Columbia?).....*Psaltriparus minimus saturatus* (p. 434)
 ee. Paler. (Coast district, from the Columbia River to northern Lower California.).....*Psaltriparus minimus minimus* (p. 432)
 dd. Paler, the sides and flanks more faintly smoky brown. (Interior districts of California and Oregon, from Walkers Basin to the Columbia River.).....*Psaltriparus minimus californicus* (p. 435)
 cc. Back, etc., paler and clearer gray. (Cape St. Lucas district, Lower California.).....*Psaltriparus grindæ* (p. 436)

PSALTRIPARUS MELANOTIS MELANOTIS (Hartlaub).

BLACK-EARED BUSH-TIT.

Adult male.—Pileum plain slate-gray, usually paler anteriorly, the forehead sometimes whitish; sides of head, including loreal, orbital, suborbital, malar, and auricular regions glossy greenish black or bluish black, this continued round hindneck as a narrow collar; back, scapulars, lesser wing-coverts, rump, and upper tail-coverts, plain brownish olive or olive-brown, the rump slightly browner; wings (except lesser coverts) and tail dull slate color with pale gray edgings; chin and sides of upper throat black, or mostly so; throat (except sides of upper portion), chest, and sides of neck white; breast very pale buffy gray or grayish buff, deeper and more buffy posteriorly; femoral and anal regions cinnamon-buff, the under tail-coverts similar, but paler; sides and flanks, grayish écreu drab; thighs, dull buffy whitish; axillars and under wing-coverts clear buffy white; bill, legs, and feet black; length (skins), 90–106 (100); wing, 48–50.5 (49.2); tail, 50.5–55 (52.3); culmen, 6–7.5 (6.9); tarsus, 14.5–17 (15.9); middle toe, 7.5–9 (8.5).

Adult female.—Similar to the adult male, but sides of head light brown (hair brown, broccoli brown, or drab) instead of black,^b and

^aOwing to the circumstance that there is a very decided seasonal difference in coloration, autumnal and winter birds being much darker than those taken in spring and summer, a very concise statement of the differential characters of the several forms in the "Key" is scarcely practicable. The comparison is therefore based on the autumnal and winter plumage alone, in which the color differences are more obvious than in the spring and summer plumage. It may be explained, further, that the winter plumage of the palest form (*californicus*) is much like the summer plumage of the one next darker (*minimus*), while the winter plumage of the latter is much like the summer plumage of the darkest form (*saturatus*). These seasonal differences of coloration should, of course, be taken into account in the determination of specimens; any comparison which ignores them being, obviously, without value.

^bUsually there is more or less of a black patch on sides of occiput (behind auricular region), the two of opposite sides often connected across the hindneck, and sometimes the black is continued anteriorly as a postocular streak.

under parts of body more strongly buffy, without vinaceous tinge on sides or flanks; length (skins), 90–105.5 (100.8); wing, 47.5–51 (48.5); tail, 52–57 (54); culmen, 6.5–7.5 (7.2); tarsus, 15.5–17 (16); middle toe, 8–9 (8.4).^a

Southern Mexico, in States of Guanajuato (Santa Rosa), Hidalgo (Real del Monte), Mexico (Valley of Mexico), Puebla (Teziutlan; Chalcicomula), Vera Cruz (Las Vigas; Mirador), Michoacan (Patzcuaro), Oaxaca (La Parada; Mount Zempoaltepec; Tehuantepec), and Chiapas (San Cristobal), and highlands of Guatemala (Sololá; Godines; Volcan de Fuego; San Lucas; Hacienda Chancol).

Parus melanotus SANDBACH, Rep. Brit. Assoc., iv, 1837 (1838), 99 (Mexico; = *nomen nudum*!).

Parus melanotis HARTLAUB, Rev. Zool., 1844, 216 (Guatemala; coll. Bremen Mus.).

[*Parus*] *melanotis* GRAY, Hand-list, i, 1869, 234, no. 3391.

[*Poecila*] *melanotis* BONAPARTE, Consp. Av., i, 1850, 230.

A[egithaliscus] *melanotis* CABANIS, Mus. Hein., i, 1850, 90, footnote.

Psaltria melanotis WESTERMANN, Bijdrag. Dierk., 1851, 16, pl.—CASSIN, Illustr.

Birds Cal., Tex., etc., 1853, 20.

Psaltriparus melanotis BONAPARTE, Compt. Rend., xxxviii, 1854, 62.—SCLATER, Proc. Zool. Soc. Lond., 1858, 299 (La Parada, Oaxaca); 1864, 172 (City of Mexico), Cat. Am. Birds, 1862, 13 (Mexico).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 396 (Guatemala; "Texas" ^b); ed. 1860 (Birds N. Am.), atlas, pl. 53, fig. 3; Rep. U. S. and Mex. Bound. Surv., ii, pt. 2, 1859, 14, pl. 15, fig. 3; Cat. N. Am. Birds, 1859, no. 297; Review Am. Birds, 1864, 84 (Cayuilalpam ^c).—SALVIN, Ibis, 1866, 190 (Sololá, Guatemala); 1874, 99 (do.).—SUMICHRIST, Mem. Bost. Soc. N. H., i, 1869, 544 (alpine reg. Vera Cruz).—DUGES, La Naturelle, i, 1869, 140 (Guanajuato).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 108, pl. 7, fig. 8.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 49; Proc. U. S. Nat. Mus., ix, 1886, 134

^a Ten specimens.

Specimens from different geographic areas compare in average measurements as follows:

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Middle toe.
MALES.					
Nine adult males from Vera Cruz, Puebla, Mexico, Hidalgo, and Michoacan	49.3	52.8	7	16.3	8.7
Three adult males from Oaxaca	49.5	53.5	6.8	15.3	8
Six adult males from Chiapas	48.8	53.6	7	15.9	8.3
Two adult males from Guatemala	49.2	53.7	6.5	15.7	8.5
FEMALES.					
Five adult females from Vera Cruz, Puebla, Mexico, and Hidalgo	49.1	54.5	7.2	16.5	8.7
One adult female from Oaxaca	48.5	52	7	15.5	8.5
Four adult females from Chiapas	47.7	54	7.2	15.5	8

I am not able to discern any difference in coloration between Guatemalan specimens and those from Mexico.

^b In table of measurements.

^c State of Vera Cruz?

- (Teziutlan, Puebla; crit.; descr. female).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 58, part (Valley of Mexico, alpine reg. Vera Cruz, and Cayuitalpam, Mexico; Sololá, Godines, Volcan de Fuego, and San Lucas, Guatemala).—SALVIN, Cat. Strickland Coll., 1882, 66 (Guatemala).—COUES, Check List, 2d ed., 1882, no. 55.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 745, part.—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 134 (Teziutlan, Puebla).—CHAPMAN, Bull. Am. Mus. N. H., x, 1898, 38 (Las Vigas, Vera Cruz, 8,000 ft.).
- Acredula melanotis* GADOW, Cat. Birds Brit. Mus., viii, 1883, 55 (La Parada, Oaxaca; "California").
- Psaltiriparus personatus* BONAPARTE, Compt. Rend., xxxi, Sept., 1850, 478. (Mountains of southern Mexico.)
- Psaltria personata* WESTERMANN, Bijdrag. Dierk., 1851, 16, plate.
- Psaltrites helviventris* CABANIS, Journ. für Orn., xxix, July, 1881, 333 (Tehuantepec?; =female; coll. Berlin Mus.); Oct., 1881, pl. 4, fig. 1.—REICHENOW and SCHALOW, Journ. für Orn., 1884, 421 (reprint of orig. descr.).
- [*Psaltiriparus*] *melanotis* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 4.
- P[*saltriparus*] *melanotis* COUES, Key N. Am. Birds, 2d ed., 1884, 268.—RIDGWAY, Man. N. Am. Birds, 1887, 565, part; 2d ed., 1896, 565.
- A[*egithalos*] *melanotis melanotis* HELLMAYR, Tierreich, 18 Lief., Mar., 1903, 111.

PSALTRIPARUS MELANOTIS IULUS Jouy.

JOUY'S BUSH-TIT.

Similar to *P. m. melanotis* but color of back, etc., much less brown (grayish olive or olivaceous hair brown, instead of olive-brown), and under parts slightly paler.

Adult male.—Length (skins), 93.5–109.5 (102.6); wing, 47.5–52 (49.8); tail, 52–56.5 (54.2); culmen, 6.5–7 (6.9); tarsus, 15.5–16 (15.6); middle toe, 8–8.5 (8.2).^a

Adult female.—Length (skin), 100; wing, 47.5; tail, 50.5; culmen, 7; tarsus, 15.5; middle toe, 8.^b

Western and central Mexico, in States of Jalisco (Hacienda el Molino; La Laguna; Sierra Nevada), Zacatecas (Valparaiso), San Luis Potosí (mountains near Jesus Maria), and Territory of Tepic (Santa Teresa).

Psaltiriparus melanotis iulus JOUY, Proc. U. S. Nat. Mus., xvi, no. 975, Apr. 18, 1894, 776 (Hacienda El Molino, Jalisco, s. w. Mexico; coll. U. S. Nat. Mus.).—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 611, in text.

A[*egithalos*] *melanotis iulus* HELLMAYR, Tierreich, 18. Lief., Mar., 1903, 111.

^aSix specimens.

^bOne specimen.

^cThe single specimen examined from San Luis Potosí is in reality intermediate in coloration between the present form and *P. m. lloydi*, but seems rather near the former.

PSALTRIPARUS MELANOTIS LLOYDI (Sennett).

LLOYD'S BUSH-TIT.

Similar to *P. m. iulus* but back, etc., olive-gray instead of grayish olive or hair brown, and under parts much paler, with little if any buffy tinge.

Adult male.—Pileum plain slate-gray; sides of head, including loreal, orbital, suborbital, malar, and auricular regions, glossy greenish black; back, scapulars, lesser wing-coverts, rump, and upper tail-coverts plain deep olive-gray; wings (except lesser coverts) and tail deep smoke gray or mouse gray with pale gray edgings; chin and sides of upper throat black, or mostly so; rest of throat, together with chest and sides of neck, white; under parts of body slightly duller white, the sides and flanks more or less strongly washed with grayish écu drab, the flanks sometimes touched with vinaceous; under tail-coverts, anal region, and thighs dull buffy whitish; under wing-coverts and axillars white; bill black; legs and feet black (in dried skins); length (skins), 97–110 (103.5); wing, 47–52.5 (49.9); tail, 48.5–58.5 (53.4); culmen, 6.5–7.5 (7.1); tarsus, 15–17 (16); middle toe, 8–8.5 (8.3).^a

Adult female.—Similar to the adult male but with black on sides of head usually replaced, at least in part, by pale drab or broccoli brown,^b and under parts of body very pale dull buffy; length (skins), 93.5–107.5 (102.2); wing, 46.5–51 (49); tail, 50–57 (53.6); culmen, 6.5–7.5 (7); tarsus, 15–16.5 (15.6); middle toe, 7.5–8.5 (8.1).^c

^a Fifteen specimens.

^b If the black occupies the same area as in the adult male, it is duller and usually more or less broken. As a rule, the black is present as a post-auricular patch, of greater or less extent, sometimes extending anteriorly, as a narrow streak toward the eye. Females of this form, as well as some young males, without any black on the sides of the head are exceedingly difficult to distinguish from *P. plumbeus*, perhaps the most certain distinctive character being the obvious, though slight, difference in color between the pileum and the back, the latter being a more olivaceous gray than the former.

^c Fifteen specimens.

Texan specimens compare in average measurements with those from Chihuahua and Sonora as follows:

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Middle toe.
MALES.					
Five adult males from southwestern Texas.....	48.9	51.2	7.4	16	8.5
Ten adult males from northern Chihuahua	50.4	54.3	7	16	8.2
FEMALES.					
Five adult females from southwestern Texas.....	48.2	53.6	7.4	15.7	8.2
Ten adult females from northern Chihuahua (4) and Sonora (6)	49.3	53.7	6.8	15.6	8.1

I am unable to perceive any difference in coloration between the two series.

Young male.—Similar to the adult female, but under parts as in the adult male (without buffy tinge), except that the sides and flanks are very slightly, if at all, tinged with écreu drab or vinaceous.

Young female.—Similar to the young male, but always (?) without blackish spot or suffusion on sides of occiput^a and with the under parts of body faintly tinged with buff.

Southwestern Texas (Chisos, Guadalupe, and Davis mountains, Alpine, Paisano, etc.), southern New Mexico (Silver City) and southern Arizona (Chiricahua, Huachuca, and Santa Rita mountains, Camp Bowie, etc.), and southward into northern Sonora (Bavispe River, Puerto de los Pinitos) and Chihuahua (Jesus Maria; Bravo; Pinos Altos).

Psaltriparus lloydi SENNETT, Auk, v, Jan., 1888, 43 (Limpia Cañon, near Fort Davis, Presidio Co., s. w. Texas; coll. G. B. Sennett).—CHAPMAN, Auk, v, 1888, 400.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 2d ed., 1895, no. 745.—ALLEN, Bull. Am. Mus. N. H., v, 1893, 41 (Bavispe R., n. e. Sonora, Dec.).—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 611.—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 462.

Psaltriparus melanotis lloydi OBERHOLSER, Auk, xix, July, 1902, 301 (Fort Davis, Chisos Mts., and Ord Mts. south of Alpine, s. w. Texas).

A[egithalos] lloydi HELLMAYR, Tierreich, 18. Lief., Mar., 1903, 112.

(?) *Psaltriparus melanotis* (not *Parus melanotis* Hartlaub) RIDGWAY, Bull. Essex Inst., vii, 1875, 20, 35 (East Humboldt Mts., Nevada); Orn. 40th Parallel, 1877, 415 (do.).

Psaltriparus melanotis RIDGWAY, Nom. N. Am. Birds, 1881, no. 49, part; Man. N. Am. Birds, 1887, 565, part (Rio Grande Valley).—AMERICAN ORNITHOLOGISTS' UNION, Check List., 1886, no. 745.

Psaltriparus santaritæ RIDGWAY, Proc. U. S. Nat. Mus., x, Oct. 12, 1888, 697 (Santa Rita Mts., s. Arizona; coll. U. S. Nat. Mus.); Man. N. Am. Birds, 2d ed., 1896, 611.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 2d ed., 1895, no. 744. 1.—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 462.

A[egithalos] santaritæ HELLMAYR, Tierreich, 18. Lief., Mar., 1903, 113.

PSALTRIPARUS PLUMBEUS (Baird).

PLUMBEOUS BUSH-TIT.

Entirely similar to those females of *P. m. lloydi* having no black on sides of head, but averaging grayer and more uniform beneath. with the throat and chest usually little, if any, paler than other under parts; adult male never with any black on sides of head.^b

^aThe young male (if specimens are correctly sexed) sometimes lacks any black on side of head.

^bThe relationship of this form to *P. melanotis lloydi* affords a problem very difficult of solution and of exceptional interest in connection with the discrimination between species and subspecies. Judging from specimens alone, it is difficult to escape the conclusion that the two forms intergrade completely; at least I find myself unable to satisfactorily refer a very large percentage of specimens obtained within the area of overlapping of their respective ranges. But Mr. Oberholser, who has had excellent opportunities of studying both forms in life, assures me that they not only both

Adults (sexes alike).—Above plain, deep olive-gray or smoke gray, the pileum usually very slightly clearer gray, or less tinged with olive, than back, etc.; wings and tail darker and more brownish gray, with light gray edgings; sides of head, including loreal, orbital, suborbital, malar, and auricular regions, plain hair brown or drab; under parts plain pale smoke gray or drab-gray (more whitish in worn midsummer plumage), the chin and sides of upper throat tinged with drab;^a bill, legs, and feet black; iris pale yellow or yellowish white (sometimes present only as an outer ring and concealed by eyelids).

Young.—Similar to adults, but sides of head less distinctly brownish (nearly concolor with pileum) and plumage of looser texture.

Adult male.—Length (skins), 100.5–114 (107.3); wing, 48.5–53 (51); tail, 54.5–62 (56.7); culmen, 6.5–7.5 (7); tarsus, 15.5–16.5 (16.2); middle toe, 7.5–8.5 (8.2).^b

Adult female.—Length (skins), 94–111 (105.5); wing, 49–53.5 (50.6); tail, 51–58.5 (55.8); culmen, 6.5–7.5 (7); tarsus, 15–16.5 (15.8); middle toe, 8–8.5 (8.1).^b

Arid interior districts of western United States; north to eastern Oregon (Camp Harney, Cañon City, etc.) and southwestern Wyoming (Green River); east to Colorado (El Paso, Fremont, Pueblo, and Garfield counties) and southwestern Texas (Guadalupe, Davis, and Chisos Mountains, El Paso, Jeff Davis, and Brewster counties); west to western Nevada and southeastern California (Panamint Mountains, Lone Valley, etc., Inyo County); south to about parallel of 30° in southwestern Texas, northern Chihuahua (?), and northern Sonora (near Oposura).

P[arus] minimus (not of Townsend) GAMBEL, Journ. Ac. Nat. Sci. Phila., ii, 1847, 36, part (Rocky Mts.).

Parus minimus (not of Townsend) HENRY, Proc. Ac. Nat. Sci. Phila., vii, 1855, 309 (New Mexico).

Psaltriparus minimus (not of Bonaparte) HENRY, Proc. Ac. Nat. Sci. Phila., xi, 1859, 107 (New Mexico).—HENSHAW, Ann. Lyc. N. Y., xi, 1874, (3) (Utah); Annot. List Birds Utah, 1874, 40; Rep. Orn. Spec. Wheeler's Surv., 1874, 99.

Psaltia plumbea BAIRD, Proc. Ac. Nat. Sci. Phila., vii, June, 1854, 118 (Little Colorado R., Arizona; coll. U. S. Nat. Mus.).—KENNERLY, Rep. Pacific R. R. Surv., iv, pt. vi, 1856, 10 (sixth camp, Little Colorado R.).

Psaltriparus plumbeus BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 398; ed. 1860 (Birds N. Am.), atlas, pl. 33, fig. 2; Cat. N. Am. Birds, 1859, no. 299; Review Am. Birds, 1864, 84.—KENNERLY, Rep. Pacific R. R. Surv., x, 1859, 27, pl. 33, fig. 2 (Little Colorado R. and Bill Williams' Fork, Arizona).—HENRY, Proc.

breed in the same localities in southwestern Texas, but that they each have distinctive peculiarities of voice, etc. It is true that apparent intergradation does not involve adult males, which are always very distinct, the difficulty being in distinguishing those females and some young examples of *P. m. lloydi* which have no black on the head from adults (both sexes) of *P. plumbeus*.

^aIn some specimens (both males and females, according to labels) the flanks are tinged with grayish vinaceous or ecru drab.

^bTen specimens.

- Ac. Nat. Sci. Phila., xi, 1859, 107 (New Mexico).—COUES, *Ibis*, 1865, 164 (Arizona); Proc. Ac. Nat. Sci. Phila., xviii, 1866, 79 (Fort Whipple, Arizona); Check List, 1873, no. 36; 2d ed., 1882, no. 54; Birds N. W., 1874, 23; Birds Col. Val., 1878, 125.—COOPER, Orn. Cal., 1870, 49 (Arizona, etc.).—AIKEN, Proc. Bost. Soc. N. H., xv, 1872, 195 (Colorado).—STEVENSON, Prelim. Rep. U. S. Geol. Surv. Terr. for 1871 (1872), 464 (Green R., Wyoming).—YARROW and HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 7 (Iron City and Beaver, Utah).—RIDGWAY, Orn. 40th Parallel, 1877, 413 (Peavine and Virginia Mts., near Carson City, and West Humboldt Mts., Nevada; near Salt Lake City, Utah; habits); Nom. N. Am. Birds, 1881, no. 48.—BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 80 (Chiricahua Mts., Arizona).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 744.—COOKE, Bird Migr. Miss. Val., 1888, 278 (Fort Davis, w. Texas, Nov.); Bull. 37, Colo. State Agric. Coll., 1897, 123 (Colorado; breeding from plains to 7,800 ft.; resident); Bull. 56, 1900, 222 (Beulah, near Cañon City, and Glenwood Springs, Colorado, breeding).—BENDIRE, Proc. U. S. Nat. Mus., x, 1888, 557 (Fort Huachuca, Arizona; habits; descr. nest and eggs).—SCOTT (W. E. D.), Auk, v, 1888, 166 (Santa Catalina and Pinal Mts., s. Arizona, up to 7,500 ft.; resident).—FISHER (A. K.), North Am. Fauna, no. 7, 1893, 141 (Grapevine, White, and Juniper Mts., etc., Nevada; Panamint Mts., etc., s. e. California).—LOWE, Auk, xi, 1894, 270 (Wet Mts., Colorado, up to 7,800 ft.).—WILSON (S. S.), Auk, xvi, 1899, 189 (San Miguel Co., s. w. New Mexico).—OBERHOLSER, Auk, xix, 1902, 301 (high mountains of s. w. Texas).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 462.
- [*Psaltriparus*] *plumbeus* COUES, Key N. Am. Birds, 1872, 82.
- P[*saltriparus*] *plumbeus* HENSHAW, Orn. Rep. Wheeler's Surv., 1879, 288 (near Carson City, Nevada, July).—COUES, Key N. Am. Birds, 2d ed., 1884, 268.—RIDGWAY, Man. N. Am. Birds, 1887, 565.
- Psaltriparus minimus* . . . var. *plumbeus* RIDGWAY, Bull. Essex Inst., v, Nov., 1873, 180 (Colorado).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 40 (Utah), 99 (Fort Wingate, New Mexico; Apache, Arizona), 155 (Arizona); Zool. Exp. W. 100th Merid., 1875, 171 (Iron City and Beaver, Utah; Fort Wingate and Santa Fe, New Mexico; Camp Apache and Camp Bowie, Arizona; habits).
- Psaltriparus minimus* var. *plumbeus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 110.—BENDIRE, Proc. Bost. Soc. N. H., 1877, 112 (Camp Harney and Cañon City, e. Oregon, summer resident).
- Psaltriparus* var. *plumbeus* BAIRD, Brewer, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 7, fig. 10.
- Psaltriparus minimus plumbeus* RIDGWAY, Bull. Essex Inst., vii, Jan., 1875, 10, 11 (Carson City, etc., w. Nevada), 19 (West Humboldt Mts., Nevada), 20 (East Humboldt Mts.).
- [*Acredula minima*.] B. Eastern Race (*A. plumbea*) GADOW, Cat. Birds Brit. Mus., viii, 1883, 56 (excl. syn. *Psaltrites helviventris* Cabanis).
- [*Parus*] *plumbeus* GRAY, Hand-list, i, 1869, 234, no. 3393.
- A[*egithalos*] *plumbeus* HELLMAYR, Tierreich, 18. Lief., Mar., 1903, 113.

PSALTRIPARUS MINIMUS MINIMUS (Townsend).

BUSH-TIT.

Adults in spring and summer.—Pileum and hindneck plain, warm broccoli brown or drab; back, scapulars, lesser wing-coverts, rump, and upper tail-coverts, plain deep smoke gray; wings (except lesser coverts) and tail darker gray (dull slate color), with pale-gray edgings:

sides of head (including loreal, orbital, suborbital, malar, and auricular regions) similar in color to pileum, but much paler and duller; under parts dull brownish-white, deepening on sides and flanks into pale, dull écru drab; bill, legs, and feet black; iris light yellow.

Adults in autumn and winter.—Similar to the spring and summer plumage, but coloration darker, the pileum and hindneck more sooty brown, the sides and flanks more decidedly vinaceous-brown.

Young.—Similar to spring and summer adults, but color of pileum and hindneck deeper and duller (more as in winter adults); under parts of body tinged with pale brownish buffy, and edgings to tertials and greater wing-coverts pale brownish.

Adult male.—Length (skins), 92.5–108.5 (102.4); wing, 45.5–49.5 (47.6); culmen, 6.5–7.5 (6.9); tarsus, 15–16.5 (15.9); middle toe, 8–9 (8.4).^a

Adult female.—Length (skins), 92–108.5 (101.6); wing, 45.5–49.5 (47.5); tail, 46.5–55 (51.4); culmen, 6.5–7 (6.9); tarsus, 15–16 (15.7); middle toe, 8.9 (8.5).^b

West slope of coast mountains in Oregon, California, and northern Lower California, north to the Columbia River, south to Nachoguerro Valley, Lower California (also to San Pedro Martir Mts.,^c and San Fernando?).^c

Parus minimus TOWNSEND, Journ. Ac. Nat. Sci. Phila., vii, 1837, 190 (Columbia R.); viii, 1839, 152.—BONAPARTE, Geog. and Comp. List, 1838, 20.—AUDUBON, Orn. Biog., iv, 1838, 382, pl. 352, figs. 5, 6; Synopsis, 1839, 80; Birds Am., oct. ed., ii, 1841, 160, pl. 130.—NUTTALL, Man. Orn. U. S. and Can., 2d ed., i, 1840, 269 (Columbia R.; Santa Barbara).—GAMBEL, Proc. Ac. Nat. Sci. Phila., iii, 1846, 155 (California); Journ. Ac. Nat. Sci. Phila., i, 1847, 36 part (California).

[*Poecila*] *minimus* BONAPARTE, Consp. Av., i, 1850, 230.

Psaltia minima CASSIN, Illustr. Birds Cal., Tex., etc., 1853, 20.—HEERMANN, Journ. Ac. Nat. Sci. Phila., ii, 1853, 264, part; Rep. Pacific R. R. Surv., x, pt. iv, 1859, 43, part.—SCLATER, Proc. Zool. Soc. Lond., 1857, 126 (Santa Clara Valley, California).

Psaltiriparus minimus BONAPARTE, Compt. Rend., xxxviii, 1854, 62.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 397 (Santa Clara and Los Angeles, California); Cat. N. Am. Birds, 1859, no. 298, part; Review Am. Birds, 1864, 84, part (Napa Valley, California).—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. 2, 1860, 195, part (California).—COOPER, Orn. Cal., 1870, 48, part (San Francisco and San Diego, California); Am. Nat., iv, 1871, 757 (Monterey, California).—COUES, Check List, 1873, no. 35, part; 2d ed., 1882, no. 53, part; Birds Col. Val., 1878, 124, footnote, part.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 7, fig. 9.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 743, part.—ANTHONY, Auk, iii, 1886, 171 (Washington Co., Oregon, resident).—EVERMANN, Auk, iii, 1886, 186 (Ventura Co., California, resident).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 460.

^a Twenty-four specimens.

^b Eleven specimens.

^c Specimens from these localities not seen by me.

- [*Psaltriparus*] *minimus* COUES, Key N. Am. Birds, 1872, 82, part.
P[saltriparus] minimus COUES, Key N. Am. Birds, 2d ed., 1884, 268, part.—
 RIDGWAY, Man. N. Am. Birds, 1887, 565, part.
Psaltriparus minimus; var. *minimus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am.
 Birds, i, 1874, 109, part.
Psaltriparus minimus minimus GOODE, Bull. U. S. Nat. Mus., no. 20, 1883, 333,
 part.—GRINNELL, (J.) Pacific Coast Avifauna, no. 3, 1902, 72, part.
A[egithalos] minimus minimus HELLMAYR, Tierreich, 18 Lief., Mar., 1903, 112, part.
Psaltriparus minimus californicus, part, RIDGWAY, Proc. Biol. Soc. Wash., ii,
 1884, 89 (southern coast distr., California).—AMERICAN ORNITHOLOGISTS'
 UNION, Check List, 1886, no. 743a, part.—EMERSON, Bull. 7, Calif. Ac. Sci.,
 1887, 424, 431 (San Diego Co., California).—(?) ANTHONY, Zoe, iv, 1893,
 246 (San Pedro Martir Mts., Lower California, chiefly below 3,000 ft.);
 (?) Auk, xii, 1895, 143 (San Fernando, Lower California^a).—MERRIAM
 (Florence A.), Auk, xiii, 1896, 123 (Twin Oaks, San Diego Co., California;
 habits).—GRINNELL (J.), Pub. 2, Pasadena Ac. Sci., 1898, 50 (Los Angeles
 Co., California, resident).
P[saltriparus] minimus californicus RIDGWAY, Man. N. Am. Birds, 1887, 565,
 part.
P[saltriparus] m[inimus] californicus BAILEY (Florence M.), Handb. Birds W.
 U. S., 1902, 461, part.
A[egithalos] minimus californicus HELLMAYR, Tierreich, 18 Lief., Mar. 1903, 112,
 part.

PSALTRIPARUS MINIMUS SATURATUS, new subspecies.^b

PUGET SOUND BUSH-TIT.

Similar to *P. m. minimus*, but darker in corresponding plumages, the spring and summer plumage about as dark above as the autumn and winter plumage of *P. m. minimus*, and decidedly darker below, especially the brown of sides and flanks; young with color of pileum duller, more grayish sooty.

Adult male.—Length (skins), 101–106.5 (104); wing, 46–48.5 (47.5); tail, 52–54 (53.1); culmen, 7–7.5 (7.1); tarsus, 16–16.5 (16.1); middle toe, 8.5.^c

Adult female.—Length (skins), 102.5–108.5 (106.2); wing, 46–48 (46.6); tail, 51–52.5 (51.9); culmen, 6.5–7 (6.9); tarsus, 15.5–16 (15.7); middle toe, 8–8.5 (8.4).^d

Vicinity of Puget Sound (Fort Steilacoom, Seattle, Mount Vernon, etc., Washington).

Psaltriparus minimus (not *Parus minimus* Townsend) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 397, part (Fort Steilacoom, Washington); Cat. N. Am. Birds, 1859, no. 298, part; Review Am. Birds, 1864, 84, part (Fort Steilacoom).—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. 2, 1860, 195, part (Fort Steilacoom).—COOPER, Orn. Cal., 1870, 48, part (in synonymy).—COUES, Check List, 1873, no. 35, part; 2d ed., 1882, no. 53, part; Birds Col.

^aSpecimens from the localities mentioned not seen by me.

^bType, no. 136372, coll. U. S. Nat. Mus. (Biological Survey coll.), Mount Vernon, Washington, December 11, 1895; C. P. Streater,

^cFour specimens.

^dFive specimens.

Val., 1878, 124, footnote, part.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 47, part.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 743, part.—BROOKS, Auk, xvii, 1900, 107 (British Columbia).—RATHBUN (S. F.), Auk, xix, 1902, 140 (Seattle, Washington, resident).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 460, part (Washington).

[*Psaltiriparus*] *minimus* COUES, Key N. Am. Birds, 1872, 82, part.

P[saltiriparus] minimus COUES, Key N. Am. Birds, 2d ed., 1884, 268, part.—RIDGWAY, Man. N. Am. Birds, 1887, 565, part.

A[egühalos] minimus minimus HELLMAYR, Tierreich, 18 Lief., Mar., 1903, 112, part.

PSALTRIPARUS MINIMUS CALIFORNICUS Ridgway.

SACRAMENTO BUSH-TIT.

Similar to *P. m. minimus* but decidedly paler, the pileum light broccoli brown in spring and summer, the back, etc., olive-gray instead of deep smoke gray. (The autumnal and winter plumage very similar to the spring and summer plumage of *P. m. minimus*.)

Adult male.—Length (skins), 97.5–101 (99.4); wing, 47–49.5 (48.2); tail, 50–53.5 (52.4); culmen, 7; tarsus, 16–17 (16.6); middle toe, 8–9, (8.7).^a

Adult female.—Length (skin), 97.5; wing, 48.5; tail, 50.5; culmen, 7; tarsus, 16; middle toe, 8.5.^b

Interior districts of Oregon and California, east of the Cascade range in Oregon, and between coast mountains and crest of the Sierra Nevada in California; north to northeastern Oregon (Wilbur, Umatilla County), south to the valley of Kern River (Walkers Basin, etc.), southern California.

Psaltia minima (not *Parus minimus* Townsend) HEERMANN, Journ. Ac. Nat. Sci. Phila., ii, 1853, 264, part; Rep. Pacific R. R. Surv., x, pt. iv, 1859, 43, part.

Psaltiriparus minimus BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 397, part (Sacramento Valley and Fort Tejon, California); Cat. N. Am. Birds, 1859, no. 298, part; Review Am. Birds, 1864, 84, part (Sacramento Valley, Auburn, and Fort Tejon, California).—XANTUS, Proc. Ac. Nat. Sci. Phila., xi, 1859, 191 (Fort Tejon, California).—COOPER, Orn. Cal., 1870, 48, part (Sierra Nevada, California).—COUES, Check List, 1873, no. 35, part; 2d ed., 1882, no. 53, part; Birds Col. Val., 1878, 124, footnote, part.—NELSON, Proc. Bost. Soc. N. H., xvii, 1875, 356 (Nevada City, California; habits).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 47, part.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 743, part.—TOWNSEND (C. H.), Proc. U. S. Nat. Mus., x, 1887, 229 (Red Bluff, etc., upper Sacramento Valley; habits; descr. nest).

[*Psaltiriparus*] *minimus* COUES, Key N. Am. Birds, 1872, 82, part.

P[saltiriparus] minimus COUES, Key N. Am. Birds, 2d ed., 1884, 268, part.

Psaltiriparus minimus, var. *minimus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 109, part (Fort Tejon).

Psaltiriparus minimus minimus GOODE, Bull. U. S. Nat. Mus., no. 20, 1883, 338, part.—GRINNELL, Pacific Coast Avifauna, no. 3, 1902, 72, part.

Psaltiriparus minimus californicus RIDGWAY, Proc. Biol. Soc. Wash., ii, Apr. 10, 1884, 89 (Baird, Shasta Co., California; coll. U. S. Nat. Mus.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 743a, part.

P[saltiriparus] minimus californicus RIDGWAY, Man. N. Am. Birds, 1887, 565, part.

^a Six specimens.

^b One specimen.

P[saltriparus] m[inimus] californicus BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 461, part.

A[egithalos] minimus californicus HELLMAYR, Tierreich, 18 Lief., Mar., 1903, 112, part.

PSALTRIPARUS GRINDÆ Belding.

GRINDA'S BUSH-TIT.

Similar to *P. minimus californicus* but slightly smaller, with relatively smaller feet; color of back, scapulars, rump, and upper tail-coverts much purer (less brownish or olive) gray, and under parts paler.

Adults in spring and summer.—Pileum and hindneck plain broccoli brown; back, scapulars, lesser wing-coverts, rump, and upper tail-coverts plain gray (between gray no. 6 and mouse gray), abruptly contrasted with brown of hindneck; wings (except lesser coverts) and tail deep brownish gray or hair brown with pale gray edgings; sides of head (including loreal, orbital, suborbital, malar, and auricular regions) plain dull brownish white or very pale grayish brown; under parts dull white, the sides and flanks inclining to very pale grayish brown; bill, legs, and feet black.

Adults in autumn and winter.—Similar to the spring and summer plumage but colors deeper, especially sides of head and under parts, which are pale grayish brown rather than brownish white.

Adult male.—Length (skins), 93.5–103 (98.6); wing, 44.5–49 (47.5); tail, 48.5–55.5 (52.1); culmen, 6.5–7 (6.6); tarsus, 14.5–16 (15.3); middle toe, 7.5–8.5 (7.9).^a

Adult female.—Length (skins), 91.5–99 (95.7); wing, 45–48 (46.6); tail, 47.5–53.5 (50.6); culmen, 6.5–7 (6.8); tarsus, 14–16 (15); middle toe, 7–8 (7.8).^a

Cape St. Lucas district of Lower California (Sierra de la Laguna; Miraflores; San Francisco Mountains; Victoria Mountains).

Psaltriparus grindæ Belding, Ms., RIDGWAY, Proc. U. S. Nat. Mus., vi, Oct. 3, 1883, 155 (Laguna, Lower California; coll. U. S. Nat. Mus.); Proc. Biol. Soc. Washington, ii, 1884, 96 (crit.).—BELDING, Proc. U. S. Nat. Mus., vi, 1883, 347 (San Francisco and Victoria Mts., Lower California).—REICHENOW and SCHALOW, Journ. für Orn., 1886, 438 (reprint of orig. descr.).—BREWSTER, Bull. Mus. Comp. Zool., xli, 1902, 205 (Sierra de la Laguna, Lower California; descriptions; crit.; descr. nest).

Psaltriparus minimus grindæ RIDGWAY, Proc. U. S. Nat. Mus., viii, Sept. 2, 1885, 354.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 743b.

P[saltriparus] minimus grindæ RIDGWAY, Man. N. Am. Birds, 1887, 565.

A[egithalos] minimus grindæ HELLMAYR, Tierreich, 18 Lief., Mar., 1903, 113.

Family SITTIDÆ.

THE NUTHATCHES.

Small, scansorial "ten-primaried" acutiplantar Oscines with the bill straight, nearly as long as head, neither uncinatè nor notched; hallux (without claw) equal to or longer than outer toe (without claw),

^aTen specimens.

its claw distinctly shorter than the digit; outer toe (without claw) not reaching beyond middle of penultimate phalanx of middle toe, the latter with claw projecting more than half its length beyond claw of outer toe; tail much shorter than wing, even; outermost (tenth) primary less than one-third as long as ninth.

Bill nearly as long as head (exposed culmen nearly, sometimes quite, as long as tarsus), straight, but with at least the gonys perceptibly convex, the latter more or less strongly ascending terminally. Nostril roundish, or broadly oval, non-operculate, or with operculum narrow and inconspicuous,^a more or less concealed by antrorse bristly latero-frontal plumules. Rictal bristles obvious,^b but rather short, sometimes minute. Wing long, rather pointed; eighth, seventh, and sixth, or ninth, eighth, seventh, and sixth primaries longest, the ninth equal to or longer than fifth (equal to or longer than sixth in *Neositta*), the tenth very small, never one-third as long as ninth, sometimes scarcely longer than primary coverts; wing-tip longer than bill or tarsus. Tail much less to a little more than half as long as wing, even or slightly rounded, the rectrices broad, with rounded tip. Tarsus about as long as exposed culmen (approximately one-fifth to one-fourth as long as wing), decidedly longer than middle toe without claw (sometimes equal to middle toe with claw), the acrotarsium distinctly scutellate, lateral toes very unequal, the inner (without claw) reaching only to second joint of middle toe, the outer reaching to middle of penultimate phalanx of middle toe; basal phalanx of middle toe joined to outer toe for greater part or the whole of its length, to inner toe adherent for a less distance; hallux (without claw) equal to outer toe (without claw), its claw decidedly shorter than the digit.

Coloration.—(1) In subfamily Sittinæ above plain bluish gray or blue, including upper tail-coverts, the pileum and hindneck, at least partly, sometimes black or brown; the rectrices partly black and white (without white in genus *Callisitta*); under parts white, buff, cinnamonaceous, grayish, vinaceous, or chestnut, or with a mixture of two or more of these colors. (2) In subfamily Neosittinæ above gray streaked with dusky, or plain brown, the upper tail-coverts mostly white, the pileum white, dark gray, or black; beneath whitish, with or without streaks; inner webs of primaries with middle portion (broadly) cinnamon-rufous; outermost rectrices broadly tipped with white.

Range.—Palearctic Region (except African portion), Indo-Malayan Region, and Nearctic Region; Australia, where represented by a distinct subfamily.

^a Except in the Australian genus *Neositta* Hellmayr (*Sittella* Swainson, 1837, not of Rafinesque, 1815), in which the operculum is very distinct (sometimes as broad as the nostril itself), the wholly exposed nostril much narrower or more elongate than in *Sitta* and *Callisitta* (*Dendrophila*).

^b Except in *Neositta*.

Osteological characters.^a—Interorbital septum nearly closed and prepalatines broad as in Paridæ (*Parus*), but skull slightly depressed instead of elevated; no fronto-nasal nor maxillo-premaxillary hinge; narial openings elongate ellipses; nasals peculiar in form, with the external process carried for a considerable distance along the premaxillary, and the transpalatines and postpalatines but slightly bent downward; prepalatines overlying and fusing with the premaxillaries; a large free lachrymal, much as in Corvidæ; quadrate so compressed vertically that the pterygoid lies immediately under, and almost in contact with, the ascending process; pelvis much narrower anteriorly than in Paridæ, the ischium and pubis projecting farther downward and backward, and the obturator foramen connected with the very large obturator space; arm and manus relatively (compared with humerus) more elongate than in Paridæ (very much as in Corvidæ); proximal portion of tibia thin and bent inward (much as in *Certhia*); tibia proportionally shorter than in Paridæ, and first phalanx of first digit remarkably long.^b

I find it somewhat difficult to draw the line satisfactorily between the Sittidæ and the Certhiidæ, certain genera (*Tichodroma* and *Climacteris*) being distinctly intermediate so far as external characters are concerned, though apparently more nearly related to *Certhia* than to *Sitta*; and though disliking very much to differ from so excellent an authority as Dr. Stejneger,^c I can not help believing that the group here named Sittidæ is much more closely related to the Certhiidæ than to the Paridæ, a view which is in harmony not only with Mr. Lucas's

^a Based on *Sitta carolinensis*; from Lucas, Proc. U. S. Nat. Mus., xiii, 342, 343.

^b "Taking all skeletal characters into consideration, the differences between *Sitta* and the Paridæ are such as would seem to preclude their being grouped together, while the peculiarities of the wing of *Sitta*, slight as they may appear, when added to the other characters, seem sufficient to warrant the assignment of the genus to a separate family." (Lucas, Proc. U. S. Nat. Mus., xiii, 343.)

The following additional characters of the Sittidæ are given by Oates, in his "Birds of British India," i, 298:

"The intrinsic muscles of the syrinx fixed to the ends of the bronchial semirings; the edges of both mandibles smooth, or the upper one simply notched; hinder aspect of tarsus smooth, composed of two entire longitudinal laminae; wings with ten primaries; tongue nontubular; nostrils clear of the line of forehead, the lower edge of the nostril nearer to the commissure than the upper edge is to the culmen; plumage of the nestling resembling that of the adult female, but paler; nostrils overhung by some hairs; rectal bristles present; rectrices twelve; hind toe and inner front toe very unequal in length; sexes generally different in color; an autumn moult only."

^c With regard to the "quite doubtful" relationships of the Certhiidæ Dr. Stejneger says: "The only thing which we know at present with any degree of certainty is that the old notion of the creepers being nearly allied to the nuthatches [Sittidæ] is wrong, and that in some way or another they are related to the 'Cinnyrimorphæ' of modern authors." (Standard Natural History, iv, 539. It should be noted that in the work cited, as well as in more recent writings on the subject, Dr. Stejneger treats of the nuthatches as a subfamily, Sittinæ, of the Paridæ.)

conclusion in the matter, but also with those of Dr. Gadow.^a I must, however, dissent from the views of those (Dr. Gadow among the number) who would place the Madagascan genus *Hypositta*^b among the Sittidæ, and would, without hesitation, place it in a distinct family, Hyposittidæ.^c

The Nuthatches are a limited group of small, slender-billed, scansorial Oscines, occupying, as above stated, an intermediate position between the Paridæ and Certhiidæ, but apparently most nearly related to the latter. Besides differing from the Paridæ in the structural characters mentioned on pages 376, 377, they differ very much in their scansorial habits, being perhaps the most expert "climbers" among birds, running nimbly up or down the trunk of a tree or the face of a cliff or stone wall, often head downward, which Woodpeckers and creepers (Certhiidæ) are unable to do.

Leaving out the Australasian genus *Neositta*, which may be regarded as constituting a separate subfamily (Neosittinæ), the Nuthatches comprise two genera (by some authors combined into one), of which *Sitta* has representatives in all portions of the Palæarctic and Nearctic regions, and as far south in the Indian region as Burmah, while *Callisitta* is peculiar to India, Ceylon, Java, Timor, and the Philippines. The family is therefore chiefly an Old World one, especially since of the twenty-two species of *Sitta* recognized by Dr. Gadow in the British Museum "Catalogue" only four are American.

Genus SITTA Linnæus.

Sitta LINNÆUS, Syst. Nat., ed. 10, i, 1758, 115 (Type, *S. europæa* Linnæus).

Sittella (emendation!) RAFINESQUE, Analyse de la Nat., 1815, 68.

Sittidæ with non-operculate nostrils, concealed by antrorse bristly latero-frontal plumules; rictal bristles obvious; upper parts bluish gray, with or without black on head; tail marked with both black and white.

Range.—Temperate portions of northern hemisphere. (Nearly forty known species and subspecies.)

^a Catalogue of the Birds in the British Museum, viii, 340.

^b *Hypositta* Newton, Proc. Zool. Soc. Lond., 1881, 438 (type, *Hypherpes corallirostris* Newton).

^c The characters of which are as follows:

- a. Maxilla uncinate at tip, with tomium distinctly notched subterminally, the mandibular tomium also notched near tip; hallux (without claw) nearly as long as middle toe (without claw); outer toe very nearly as long as middle toe and united to the latter for the whole of the basal and half of its subbasal phalanges; inner toe only about half as long as outer; acrotarsium booted; tail three-fourths as long as wing *Hyposittidæ*.
- aa. Maxilla not uncinate at tip and neither maxillary nor mandibular tomia notched; hallux (without claw) decidedly shorter than middle toe (without claw); outer toe decidedly shorter than middle toe and united to the latter for not more than the basal phalanx; inner toe three-fourths as long as outer toe; acrotarsium scutellate; tail about half as long as wing *Sittidæ*.

KEY TO THE SPECIES AND SUBSPECIES OF *SITTA*.

- a. Larger; wing more than 79 mm., usually much more; whole side of head and neck white. (*Sitta carolinensis*.)
- b. Black markings on greater wings-coverts and tertials larger, more sharply defined, deeper black, more conspicuously contrasted with the clear bluish gray of marginal and terminal portions, the black space on outer web of third tertial with its posterior extremity broadly rounded.
- c. Slightly larger (except feet), with bill relatively shorter or stouter; black central spaces of greater wing-coverts and black areas on tertials more restricted; under parts more purely white, the sides and flanks faintly, if at all, tinged with gray; adult female with pileum usually bluish gray, strongly contrasted with black of hindneck. (Eastern United States, except Florida and Gulf coast, and southeastern British Provinces.)
 - Sitta carolinensis carolinensis* (p. 441)
 - cc. Slightly smaller (except feet), with bill relatively longer or narrower; black central spaces of greater wing-coverts and black areas on tertials more extended; under parts duller or more grayish white, the sides and flanks strongly grayish; adult female with pileum often glossy black, like hindneck, never (?) light bluish gray. (Florida, and along Gulf coast to Mississippi.) *Sitta carolinensis atkinsi* (p. 444)
 - bb. Black markings on greater wing-coverts and tertials less sharply defined, duller black, less conspicuously contrasted with the duller or darker gray of marginal and terminal portions, the black area on outer web of third tertial with its posterior extremity narrowly pointed or acuminate.
 - c. Smaller (wing averaging decidedly less than 90 mm.), with under parts more purely white.
 - d. Larger, especially the feet; bill relatively more slender; gray tip and white subterminal patch of lateral rectrices averaging broader; adult male averaging wing 87.3, tail 46, culmen 19.2, tarsus 18.1, middle toe 14.4. (Pacific Coast district, from northern Lower California to British Columbia.) *Sitta carolinensis aculeata* (p. 444)
 - dd. Smaller, especially the feet; bill relatively stouter; gray tip and white subterminal patch of lateral rectrices averaging narrower; adult male averaging wing 86.7, tail 44.5, culmen 18.5, tarsus 17, middle toe 13.4. (Cape St. Lucas district, Lower California.)
 - Sitta carolinensis lagunas* (p. 446)
 - cc. Larger (wing averaging 90 mm. or more); under parts less purely (more grayish) white.
 - d. Under parts paler, the sides and flanks more faintly tinged with gray; bill averaging decidedly longer; adult male averaging wing 91.4, tail 48.1, culmen 19.8, tarsus 18, middle toe 14.5. (Rocky Mountain and Great Plains districts, from eastern British Columbia and western Manitoba to Sonora, Chihuahua and western Texas.)
 - Sitta carolinensis nelsoni* (p. 447)
 - dd. Under parts darker, the sides and flanks nearly as deeply gray as back; bill averaging decidedly shorter; adult male averaging wing 91.8, tail 47.5, culmen 17.8, tarsus 17.6, middle toe 14.5. (Mountains of southern and central Mexico.) *Sitta carolinensis mexicana* (p. 448)
 - aa. Smaller (wing not more than 70 mm., usually much less); sides of head and neck not entirely white.
 - b. A white superciliary stripe; pileum glossy black or bluish gray. (Northern North America, southward to southern Alleghanies and through western mountain districts.) *Sitta canadensis* (p. 450)
 - bb. No white superciliary stripe; pileum and hindneck brown, olive or olive-gray.

- c. Pileum and hindneck brown, the posterior median portion with a large white spot; no white patch on middle rectrices. (More southern portions of eastern United States, in coast pine belt.).....*Sitta pusilla* (p. 453)
- cc. Pileum and hindneck olive, the latter without large whitish median spot (except in worn midsummer plumage); middle rectrices with basal half or more of inner web white. (*Sitta pygmaea*.)
- d. Smaller, with pileum and hindneck more deeply or decidedly olive, the latter with whitish or buffy median spot obsolete or indistinct; back more bluish gray; adult male averaging wing 64.9, tail 34.3, culmen 14.3, tarsus 14.9, middle toe 11.2. (Mountains of western North America, from British Columbia to southern Mexico.).....*Sitta pygmaea pygmaea* (p. 456)
- dd. Larger, with pileum and hindneck paler or less decidedly olive, the latter with whitish or pale buffy median spot well developed; back less bluish gray; adult male averaging wing 66.8, tail 36.7, culmen 16.3, tarsus 16, middle toe 11.5. (San Diego County, California to San Pedro Martin Mts., Lower California.).....*Sitta pygmaea leucouucha* (p. 459)

SITTA CAROLINENSIS CAROLINENSIS Latham.

WHITE-BREASTED NUTHATCH.

Adult male.—Pileum, hindneck, and extreme upper back uniform black with a bluish or bluish green gloss; a slight indication of a black postocular streak; back scapulars, lesser wing-coverts, rump, and upper tail-coverts uniform bluish gray (between slate-gray or gray no. 6 and plumbeous); middle, greater, and primary wing-coverts and alulae, black margined with bluish gray (like color of back), the tips of the greater coverts sometimes whitish, forming a narrow indistinct band; tertials with inner webs black (except next to shaft on second and third), their outer webs bluish gray, that of the third with an elongated basal patch of black, rounded at the posterior extremity, the terminal portion (for about 6–9 mm.) and edge, nearly or quite to base, bluish gray; secondaries black, edged with bluish gray; primaries blackish slate or slate color, more narrowly edged with bluish gray, these edgings becoming white or whitish on middle portion of longer quills and on terminal portion of outermost; two middle rectrices plain bluish gray, sometimes slightly darker terminally; rest of rectrices black, crossed by a broad subterminal band of white, this broader and farther from tip on exterior rectrix (where involving greater portion of outer web), reaching to tip on inner web of third rectrix, very narrow, terminal, and more or less grayish, on fourth and fifth (sometimes obsolete on latter); lores, superciliary region (broadly), rest of sides of head, sides of neck, and under parts plain white or grayish white (faintly tinged with brownish posteriorly, especially on flanks, in winter); anal region, smaller anterior and central under tail-coverts, and a large oval spot on inner webs of larger lateral and terminal under tail-coverts, light chestnut, the outer webs and terminal portion of inner webs of the latter chiefly, if not entirely, dull white or grayish white; under wing-coverts black; under

primary-coverts and basal portion of inner webs of longer primaries white, forming a conspicuous patch; maxilla black or blackish slate, usually more or less plumbeous on basal portion of culmen; mandible pale bluish gray (in life) basally, passing into dark gray or slaty terminally; iris brown; legs and feet brownish dusky (in dried skins); length (skins), 121-147.5 (133.9); wing, 86-97 (90.5); tail, 44-50.5 (46.8); culmen, 16.5-21 (19); tarsus, 18-20 (18.8); middle toe, 14.5-16.5 (15.7).^a

Adult female.—Similar to the adult male, but pileum more or less grayish, often bluish gray (similar to but considerably darker than color of back), abruptly contrasted with black of hindneck and upper back—very rarely glossy black, as in male; length (skins), 116-140 (128.8); wing, 85-92.5 (88.1); tail, 42-49.5 (46.8); culmen, 16.5-19.5 (18.1); tarsus, 17-19 (18.3); middle toe, 15-17 (15.6).^b

Young.—Similar to adults (the sexes similarly distinguished), but black of pileum (in male) and hindneck duller, less sharply defined against bluish gray of back, and edges of greater wing-coverts and secondaries more or less brownish.

Eastern United States and more southern British provinces; north

^a Twenty-six specimens.

^b Twenty-five specimens.

Specimens from different geographic areas compare in average measurements as follows:

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Middle toe.
MALES.					
Five adult males from lower South Carolina (4) and Georgia (1)	88.7	46.3	18.8	18.6	15.8
Eight adult males from southern Indiana and Illinois (5), Kentucky (1), and Tennessee (2)	89.1	45.8	18.6	18.8	15.4
Six adult males from Maryland, District of Columbia, and Virginia	91.6	46.3	19.2	18.7	15.9
Seven adult males from northern United States (Massachusetts to Minnesota)	92.3	48.8	19.4	19.1	15.6
FEMALES.					
One adult female from Texas (Giddings, breeding specimen)	86.1	44	18.5	18	15
Five adult females from lower South Carolina (4) and Georgia (1)	85.9	44.1	18.2	18.2	15.4
Three adult females from southern Illinois (2) and Tennessee (1)	87.2	45.2	17.7	18.8	15.8
Six adult females from Maryland and District of Columbia	89.5	44.4	17.7	18.3	16.2
Ten adult females from Massachusetts to Nebraska	88.9	46.6	18.4	18.4	15.4

I am not able to perceive any color differences, except apparently a very slightly darker tone of the gray of back, etc., in the specimens from southern Illinois and Indiana, Kentucky, and Tennessee, especially as compared with the northern series, those from Maryland to Georgia being in this respect intermediate.

to New Brunswick (upper St. John River), and northern Ontario (Elmsdale, etc.) casually (?) to Keewatin (Fort Churchill); west to eastern edge of Great Plains (to about the ninety-seventh meridian in Texas); south to Georgia and Gulf States (except coast belt).

[*Sitta europaea*] γ . GMELIN, Syst. Nat., i, 1788, 440 (cites *Sitta carolinensis* Brisson, Orn., iii, 596; etc.).

[*Sitta*] *carolinensis* LATHAM, Index Orn., i, 1790, 262 (based on *Sitta carolinensis* Brisson, Orn., iii, 596; etc.).

Sitta carolinensis WILSON, Am. Orn., i, 1808, 10, pl. 2, fig. 3.—BONAPARTE, Ann. Lyc. N. Y., ii, 1826, 96; Geog. and Comp. List, 1838, 10; Consp. Av., i, 1850, 227.—LICHTENSTEIN, Verz. Doubl., 1823, 17.—SWAINSON, Fauna Bor.-Am., ii, 1831, p. xxxvii.—NUTTALL, Man. Orn. U. S. and Can., i, 1832, 581.—AUDUBON, Orn. Biog., ii, 1834, 299; v, 1839, 473, pl. 152; Synopsis, 1839, 167; Birds Am., oct. ed., iv, 1842, 175, pl. 247.—REICHENBACH, Handb., Abh., ii, 1853, 153, pl. 513, figs. 3563-4.—WOODHOUSE, in Sitgreaves' Rep. Zuffi and Col. R., 1853, 66, part (e. Texas).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 374; ed. 1860 (Birds N. Am.), atlas, pl. 33, fig. 4; Cat. N. Am. Birds, 1859, no. 277; Review Am. Birds, 1864, 86.—SCLATER, Cat. Am. Birds, 1862, 15, part (in synonymy).—ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 125, 174 (Topeka, e. Kansas); Bull. Am. Mus., N. H., i, 1886, 261 (Massachusetts).—TRIPPE, Proc. Bost. Soc. N. H., 1872, 236 (Iowa).—COUES, Check List, 1873, no. 38; 2d ed., 1882, no. 57; Birds N. W., 1874, 23.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 8, figs. 1, 2.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 51; Orn. Illinois, i, 1889, 84.—MERRIAM, Bull. Nutt. Orn. Club, vi, 1881, 226 (Adirondacks, New York, breeding).—BATCHELDER, Bull. Nutt. Orn. Club, vii, 1882, 109 (upper St. John, New Brunswick, breeding).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 353, part.—BICKNELL, Auk, i, 1884, 135 (song, etc.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 727.—COOKE, Bird Migr. Miss. Val., 1888, 276 (west to 97th merid.; San Angelo and Gainesville, Texas; Caddo, Indian Territory).—BECKHAM, Proc. U. S. Nat. Mus., x, 1888, 692 (San Antonio and Leon Springs, Texas, Dec. to Mar.).—WHITE, Auk, x, 1893, 229 (Mackinac I., Michigan, July, Aug.).—SANDERSON, Auk, xv, 1898, 145 (food, habits, etc.).—EMBODY, Birds, Madison Co., New York, 1901, 32 (resident).—FLEMING, Auk, xiii, 1901, 44 (Elmsdale, etc., n. Ontario, resident).—PREBLE, North Am. Fauna, No. 22, 1902, 128 (Fort Churchill, Keewatin).—WIDMANN, Auk, xix, 1902, 237 (Wequetonsing, Michigan, breeding).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 453.

[*Sitta*] *carolinensis* BONAPARTE, Journ. Ac. Nat. Sci. Phila., iv, 1824, 25.—CABANIS, Mus. Hein., i, 1850, 93.—MAXIMILIAN, Journ. für Orn., 1858, 106 (Pennsylvania, etc.; descriptions; habits).—COUES, Key N. Am. Birds, 2d ed., 1884, 270, part.—RIDGWAY, Man. N. Am. Birds, 1887, 559, part.

[*Sitta*] *carolinensis* COUES, Key N. Am. Birds, 1872, 83.

Sitta carolinensis, var. *carolinensis* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 114.

Sitta carolinensis carolinensis GOODE, Bull. U. S. Nat. Mus., no. 20, 1883, 342.

[*Sitta*] *carolinensis carolinensis* HELLMAYR, Tierreich, 18. Lief., Mar., 1903, 187.

Sitta carolensis COVERT, Annot. List Birds Washtenaw Co., Michigan, 1881, 175 (resident).

Sitta melanocephala VIEILLIOT, Nouv. Dict. d'Hist. Nat., xxxi, 1819, 336; Gal. Ois., 1825, 280, pl. 171.—LESSON, Traité d'Orn., 1831, 316 (cites Vieillot, Gal. Ois., pl. 171, but also *Sitta canadensis* Gmelin).

SITTA CAROLINENSIS ATKINSI Scott.

FLORIDA WHITE-BREASTED NUTHATCH.

Similar to *S. c. carolinensis*, but slightly smaller (except feet), with (usually) relatively longer and more slender bill; gray of upper parts slightly darker,^a that on margins of wing-coverts and secondaries narrower; the black on inner web of two innermost secondaries (tertials) extending to the shaft; black postocular streak sometimes distinct; under parts duller or more grayish white, the sides and flanks strongly tinged with gray; adult female with the pileum usually glossy black, like hindneck and upper back, rarely distinctly grayish, never (?) conspicuously gray.

Adult male.—Length (skins), 125–140.5 (130.2); wing, 85–92 (87.3); tail, 41–47 (44.6); culmen, 18–19.5 (18.5); tarsus, 18–19.5 (18.4); middle toe, 14–16.5 (15.6).^b

Adult female.—Length (skins), 122.5–131 (126.8); wing, 82.5–90 (86.3); culmen, 17–19 (18); tarsus, 17–18.5 (18); middle toe, 15–16.5 (15.7).^b

Florida and westward along Gulf coast to Mississippi (Bay St. Louis).^c

Sitta carolinensis (not of Latham) ALLEN, Bull. Mus. Comp. Zool., ii, 1871, 265 (e. Florida).—BEYER, Proc. Louisiana Soc. Nat., 1897–99 (1900), 43 Louisiana, resident).

Sitta carolinensis atkinsi SCOTT, Auk, vii, Apr., 1890, 118 (Tarpon Springs, Florida; coll. W. E. D. Scott).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, viii, 1891, 87; Check List, 2d ed., 1895, no. 727b.—WAYNE, Auk, xii, 1895, 366 (Wacissa R., n. w. Florida, breeding).—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 610.

S[itta] carolinensis atkinsi HELLMAYER, Tierreich, 18 Lief., Mar., 1903, 188.

SITTA CAROLINENSIS ACULEATA (Cassin).

SLENDER-BILLED NUTHATCH.

Similar to *S. c. carolinensis*, but gray of back, etc., darker (about as in *S. c. atkinsi*); black central areas of greater wing-coverts much less distinct; black areas on inner secondaries also much less distinct, as well as more restricted, that on outer web of second tertial usually with posterior extremity acuminate-pointed instead of rounded; under parts more purely white; bill averaging longer and relatively more slender, and toes shorter; adult female with black of hindneck broken by dark gray tips to the feathers and concealed white spots.

^a Scarcely, if at all, more so, however, than in examples of *S. c. carolinensis* from Tennessee to southern Indiana and Illinois. See footnote on page 442.)

^b Ten specimens.

^c A specimen from the locality mentioned, in the U. S. National Museum collection, is evidently referable to this form.

Adult male.—Length (skins), 121–148.5 (132.8); wing, 84.5–91 (87.3); tail, 44–48.5 (46); culmen, 18.5–20 (19.2); tarsus, 17–18.5 (18.1); middle toe, 14–15 (14.4).^a

Adult female.—Length (skins), 128–136 (132.6); wing, 85.5–89 (87); tail, 44–47 (45.5); culmen, 19.5–21 (19.8); tarsus, 18–19 (18.4); middle toe, 14.5–15.5 (14.9).^b

Pacific coast district, from northern Lower California to British Columbia; east to eastern base of Sierra Nevada, middle Oregon, and interior of British Columbia.^c

Sitta carolinensis (not of Latham) TOWNSEND, Journ. Ac. Nat. Sci. Phila., viii, 1839, 155 (Columbia R.).—GAMBEL, Proc. Ac. Nat. Sci. Phila., iii, 1846, 112, part (California).—HEERMANN, Journ. Ac. Nat. Sci. Phila., ii, 1852, 269 (California).—WOODHOUSE, Rep. Sitgreaves's Expl. Zuffi and Col. R., 1853, 66, part (California).—NEWBERRY, Rep. Pacific R. R. Surv., vi, 1857, 79 (California; Oregon).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 353, part (California).

S[itta] carolinensis GAMBEL, Journ. Ac. Nat. Sci. Phila., ii, 1847, 33, part (California).

Sitta aculeata CASSIN, Proc. Ac. Nat. Sci. Phila., viii, Oct., 1856, 254 (California; coll. Acad. Nat. Sci. Phila.).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 375, part; ed. 1860 (Birds N. Am.), atl., pl. 33, fig. 3; Cat. N. Am. Birds, 1859, no. 278, part; Review Am. Birds, 1864, 86, part.—HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 56 (California).—XANTUS, Proc. Ac. Nat. Sci. Phila., 1859, 191 (Fort Tejon, California).—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 193 (Puget Sound, etc., Washington).—FEILNER, Ann. Rep. Smithsonian Inst. for 1864 (1865), 425 (Fort Crook, California; habits).—BROWN, Ibis, 1868, 421 (Vancouver I.).—COOPER, Am. Nat., viii, 1874, 17 (Cuyamaca Mts., San Diego Co., California); Orn. Cal., 1870, 54.—BENDIRE, Proc. Bost. Soc. N. H., 1877, 112 (Camp Harney, e. Oregon; descr. eggs).

^a Ten specimens.

^b Four specimens.

^c Specimens from these more eastern localities are in reality intermediate between this smaller coast form and the larger *S. c. nelsoni* of the Rocky Mountain district, though on the whole, except in measurements, rather nearer the former. Comparative average measurements are as follows:

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Middle toe.
MALES.					
Ten adult males from California (west of Sierra Nevada) ..	87.3	46	19.2	18.1	14.4
Six adult males from Carson City, Nevada (3), and Fort Klamath, Oregon (3)	89.7	48	20.7	18.2	14.8
Thirty adult males of <i>S. c. nelsoni</i>	91.4	48.1	19.8	18	14.5
FEMALES.					
Four adult females from California (west of Sierra Nevada) ..	87	45.5	19.8	18.4	14.9
Two adult females from Carson City, Nevada	89.2	47.2	20.5	18	15.7
One adult female from Fort Klamath, Oregon	89	47.5	19.5	17.5	14.5
One adult female from Okanogan, British Columbia	87	46	19	18.5	15
Seven adult females of <i>S. c. nelsoni</i>	90.9	46.4	18.6	17.8	14.4

- Sitta carolinensis*, var. *aculeata* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 117, part, pl. 8, fig. 2.—COUES, Birds, N. W., 1874, 24, part. [*Sitta carolinensis*.] Var. *aculeata* COUES, Key N. Am. Birds, 1872, 83, part.
- Sitta carolinensis* . . . var. *aculeata* COUES, Check List, 1873, no. 38a, part.—HENSHAW, Orn. Rep. Wheeler's Surv., 1876, 230 (Mount Whitney, California).
- Sitta carolinensis aculeata* RIDGWAY, Bull. Essex Inst., vi, Oct., 1874, 173 (Sierra Nevada); vii, 1875, 12 (Carson City, Nevada); Nom. N. Am. Birds, 1881, no. 51a, part.—COUES, Birds Col. Val., 1878, 134, part; Check List, 2d ed., 1882, no. 58, part.—MEARNS, Bull. Nutt. Orn. Club, iv, 1879, 163 (Fort Klamath, Oregon).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 727a.—EMERSON, Bull. 7, Calif. Ac. Sci., 1887, 424 (San Diego County).—ANTHONY, Zoe, iv, 1893, 246 (San Pedro Martir Mts.).—FISHER (A. K.), North Am. Fauna, no. 7, 1893, 136 (Sierra Nevada, Panamint Mts., etc., s. e. California).—GRINNELL, Pub. ii, Pasadena Ac. Sci., 1898, 49 (Los Angeles Co., California, resident).
- S[itta] c[arolinensis] aculeata* COUES, Key N. Am. Birds, 2d ed., 1884, 271, part.—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 453, part.
- S[itta] carolinensis aculeata* HENSHAW, Orn. Rep. Wheeler's Surv., 1879, 289 (Sierra Nevada to Columbia R.).—RIDGWAY, Man. N. Am. Birds, 1887, 559, part.—HELLMAYR, Tierreich, 18 Lief., 1903, 188, part.
- Sitta carolinensis* . . . *β. aculeata* RIDGWAY, Orn. Fortieth Parallel, 1877, 415, part (Sierra Nevada).—RIDGWAY and BELDING, Proc. U. S. Nat. Mus., i, 1879, 401 (Marysville, Stockton, and Calaveras Co., California).
- Sitta carolinensis, β. aculeata* RIDGWAY, Bull. Nutt. Orn. Club, iii, 1878, 65 (Calaveras Co., California).

SITTA CAROLINENSIS LAGUNÆ Brewster.

ST. LUCAS NUTHATCH.

Similar to *S. c. aculeata* but smaller, and with black tips to outer rectrices averaging slightly, the white subterminal area decidedly, narrower.

Adult male.—Length (skins), 122–132 (125.3); wing, 84.5–88 (86.7); tail, 43.5–45.5 (44.5); culmen, 17.5–19.5 (18.5); tarsus, 16–18 (17); middle toe, 12.5–14 (13.4).^a

Adult female.—Length (skins), 118.5–129 (123.4); wing, 79.5–86 (83.4); tail, 39.5–46 (44.1); culmen, 17–19.5 (18.8); tarsus, 16–17 (16.5); middle toe, 12–13.5 (13).^a

Cape St. Lucas district of Lower California (Sierra de la Laguna: Victoria Mountains).

Sitta carolinensis aculeata . . . ? (not *S. aculeata* Cassin) BELDING, Proc. U. S. Nat. Mus., vi, 1883, 347 (Victoria Mts., s. Lower California).

Sitta carolinensis aculeata AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 727a, part.

S[itta] c[arolinensis] aculeata COUES, Key N. Am. Birds, 2d ed., 1884, 271, part.

S[itta] carolinensis aculeata RIDGWAY, Man. N. Am. Birds, 1887, 559, part.

^aTen specimens.

Sitta carolinensis lagunae BREWSTER, Descr. seven supposed new species N. Am. Birds, Feb. 17, 1881, 149; Auk, viii, Apr., 1891, 149 (Sierra de la Laguna, s. Lower California; coll. W. Brewster); Bull. Mus. Comp. Zool., xli, 1902, 203 (Sierra de la Laguna, resident; crit.).

S[itta] carolinensis lagunae HELLMAYER, Tierreich, 18 Lief., 1903, 189.

SITTA CAROLINENSIS NELSONI Mearns.

ROCKY MOUNTAIN NUTHATCH.

Similar to *S. c. aculeata* but larger, with stouter bill; underparts less purely white, more strongly shaded with gray on sides and flanks; white subterminal spaces on lateral rectrices larger.

Adult male.—Length (skins), 124–143 (131.4); wing, 88.5–95.5 (91.4); tail, 43–52 (48.1); culmen, 18–23 (19.8); tarsus, 17–19 (18); middle toe, 13–15 (14.5).^a

Adult female.—Length (skins), 117–134 (126.6); wing, 87–94 (90.9); tail, 43–51 (45.4); culmen, 17–20 (18.6); tarsus, 17–18.5 (17.8); middle toe, 14–15.5 (14.4).^b

Mountain districts of western United States and British Columbia, east of the Sierra Nevada and Cascade ranges, and northern Mexico; north to British Columbia, Alberta, and western Manitoba (Big Plain, Portage la Prairie, Red River Valley, etc.); east to eastern border of Great Plains (Omaha, Nebraska, Vermilion, South Dakota, etc.), and western Texas (to about the one hundredth meridian); south to States of Sonora, Chihuahua, and Coahuila, northern Mexico.

Sitta carolinensis (not of Latham) GAMBEL, Proc. Ac. Nat. Sci. Phila., iii, 1846, 112, part (Rocky Mts.).—WOODHOUSE, in Sitgreaves's Expl. Zuffi and Col. R., 1853, 66, part (w. Texas to Arizona).—ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 148 (Colorado City, Colorado).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 353, part (w. side Rocky Mts.).—(?) LLOYD, Auk, iv, 1887, 298 (Tom Green and Concho counties, w. Texas, resident).—COOKE, Bull. 37, Col. State Agric. Coll., 1897, 121 (Colorado, resident).

S[itta] carolinensis GAMBEL, Journ. Ac. Nat. Sci. Phila., ii, 1847, 33, part (Rocky Mts.).

Sitta aculeata (not of Cassin) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 375, part; ed. 1860 (Birds N. Am.), atlas, pl. 33, fig. 3; Cat. N. Am. Birds, 1859, no. 278, part; Review Am. Birds, 1864, 86, part.—COUES, Proc. Ac. Nat. Sci. Phila., 1866, 78 (Fort Whipple, Arizona).—COOPER, Am. Nat., iii, 1869, 74.—AIKEN, Proc. Bost. Soc. N. H., xv, 1872, 195 (Colorado).—MERRIAM, Rep. U. S. Geol. Surv. for 1872 (1873), 672 (Lower Geyser Basin, Wyoming), 713.

Sitta carolinensis, var. *aculeata* ALLEN, Bull. Mus. Comp. Zool., iii, no. 6, July, 1872, 161 (Mount Lincoln, Colorado); Proc. Bost. Soc. N. H., xvii, 1874, 49 (Yellowstone and Musselshell rivers, Montana).—RIDGWAY, Bull. Essex Inst., v, 1873, 180 (Colorado).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 117, part.—COUES, Birds, N. W., 1874, 24, part.—TRIPPE, in Coues's Birds N. W., 1874, 230 (mountains of Colorado; habits).

^aThirty specimens.

^bSeven specimens.

Sitta carolinensis . . . var. *aculeata* COUES, Check List, 1873, no. 38a, part.—YARROW and HENSHAW, Orn. Rep. Wheeler's Surv., 1874, 8 (Wasatch Mts., Utah).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 40 (Utah), 73 (Fort Garland, Colorado, breeding), 100 (Arizona; New Mexico), 155 (Arizona); Zool. Expl. W. 100th Merid., 1875, 173 (Colorado; Arizona).

[*Sitta carolinensis*.] Var. *aculeata* COUES, Key N. Am. Birds, 1872, 83, part.

Sitta carolinensis aculeata COUES, Birds Col. Val., 1878, 134, part; Check List, 2d ed., 1882, no. 58, part.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 51a, part.—AGERSBORG, Auk, ii, 1885, 277 (s. e. South Dakota; "resident").—SETON, Auk, iii, 1886, 327 (Big Plain, Portage la Prairie, and along Red R., w. Manitoba; summer resid.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 727a, part.—COOKE, Bird Migr. Miss. Val., 1888, 276 (w. Manitoba; e. Nebraska; Vermilion, s. e. South Dakota; Fort Davis, w. Texas); Bull. 37, Col. Agric. Coll., 1897, 122 (Colorado, resident, breeding from 7,500 ft. to timber line).—SCOTT (W. E. D.), Auk, v, 1888, 165 (s. Arizona, in mountains).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1890, 630 (Manitoba, in oak woods; summer resid.; habits).—(?) FANNIN, Check List Birds Brit. Col., 1891, 43 (e. side Cascade Range).—ALLEN, Bull. Am. Mus. N. H., v, 1893, 41 (El Pinito, Napolera, etc., n. Sonora).—JOUY, Proc. U. S. Nat. Mus., xvi, 1893, 776 (32 m. s. of Nogales, Sonora, June 19).—MERRILL, Auk, xv, 1898, 20 (Fort Sherman, Idaho, breeding).—(?) CHAPMAN, Bull. Am. Mus. N. H., iii, 1900, 153 (interior British Columbia).

Sitta carolinensis . . . β . *aculeata* RIDGWAY, Orn. 40th Parallel, 1877, 415, part (Wasatch and Uinta Mts., Utah).

Sitta carolinensis, β . *aculeata* RIDGWAY, Field and Forest, iii, May, 1877, 196 (Colorado).

S[itta] c[arolinensis] aculeata COUES, Key N. Am. Birds, 2d ed., 1884, 271, part.—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 453, part.

S[itta] carolinensis aculeata RIDGWAY, Man. N. Am. Birds, 1887, 559, part.—HELLMAYR, Tierreich, 18 Lief., 1903, 188, part (northern Rocky Mts.).

Sitta carolinensis nelsoni MEARNS, Proc. U. S. Nat. Mus., xxiv, no. 1274, June 2, 1902, 918 (Huachuca Mts., Arizona; coll. U. S. Nat. Mus.).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 453, footnote.

S[itta] carolinensis nelsoni HELLMAYR, Tierreich, 18 Lief., 1903, 188.

SITTA CAROLINENSIS MEXICANA Nelson and Palmer.

MEXICAN NUTHATCH.

Similar to *S. c. nelsoni*, but with relatively much smaller bill and coloration of under parts decidedly darker, especially the sides and flanks, only the throat and sides of head and neck being pure white, the other under parts grayish white or pale gray medially, deepening into deep bluish gray (slightly paler than back) on flanks.

Adult male.—Length (skins), 124–136 (130.6); wing, 88.5–98.5 (91.8); tail, 44.5–53 (47.5); culmen, 16–19 (17.8); tarsus, 16.5–19 (17.6); middle toe, 13–16 (14.5).^a

Adult female.—Length (skins), 123–135 (129.7); wing, 86.5–91.5 (89.2); tail, 42–48 (45.2); culmen, 16.5–19 (17.8); tarsus, 16.5–18 (17.3); middle toe, 13–15 (14.2).^b

^a Twenty specimens.

^b Seven specimens.

South-central Mexico, in States of Vera Cruz (Orizaba, Jalapa, Las Vigas, etc.), Puebla (Mount Orizaba), Oaxaca (Cerro San Felipe), Guerrero (Chilpancingo), Jalisco (Florencio, Jacala, Talpa, etc.), Zacatecas (Valparaiso, Plateado, Sierra Madre, etc.), Durango (El Salto), southern Chihuahua^a (Colonia Garcia, Sierra Madre, etc.), and Coahuila (Sierra Guadalupe), and Territory of Tepic (Santa Teresa).

Sitta carolinensis (not of Latham) SCLATER, Proc. Zool. Soc. Lond., 1856, 293 (Cordova, Vera Cruz); 1858, 300 (Cinco Señores, Oaxaca); 1859, 363 (Jalapa, Vera Cruz), 373 (Oaxaca; crit.); Cat. Am. Birds, 1862, 15, excl. syn. part (Jalapa; Oaxaca); Ibis, 1865, 310, part (Jalapa; Oaxaca; crit.).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 353, part (Mexico).

[*Sitta*] *carolinensis* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 5.

Sitta carolinensis (vel *aculeata*) SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 544 (alpine reg., Moyoapam and Popocatepetl).

Sitta aculeata (not of Cassin) BAIRD, Review Am. Birds, 1864, 86, part (Jalapa, Vera Cruz).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 60, excl. syn. part.

Sitta carolinensis, var. *aculeata* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 117, part (Mexico).—COUES, Birds N. W., 1874, 230, part (in synonymy).

Sitta carolinensis aculeata (not of Ridgway, 1874) COUES, Birds Col. Val., 1878, 134, part (in synonymy).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 727a, part.

S[itta] c[arolinensis] aculeata COUES, Key N. Am. Birds, 2d ed., 1884, 271, part.

S[itta] carolinensis aculeata RIDGWAY, Man. N. Am. Birds, 1887, 559, part.

^a Specimens from the localities named in Chihuahua compare in average measurements with others as follows:

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Middle toe.
MALES.					
Ten adult males from eastern Mexico (Coahuila to northern Oaxaca)	91.7	47.6	17.9	17.9	14.9
Ten adult males from western Mexico (north to Durango and Zacatecas)	91.9	47.3	17.8	17.4	14
Three adult males from southern Chihuahua	98.3	47.3	18.5	17.3	14.5
Ten adult males (of <i>S. c. nelsoni</i>) from northern Chihuahua.	92.2	47.6	19.1	17.9	14.6
FEMALES.					
Two adult females from eastern Mexico (Coahuila and northern Oaxaca)	87.5	45	18	17.2	14.2
Five adult females from western Mexico (Zacatecas to Jalisco)	89.9	45.3	17.7	17.5	14.2
One adult female from southern Chihuahua (Colonia Garcia)	93	45	17	18.5	15
Six adult females (of <i>S. c. nelsoni</i>) from northern Chihuahua (3), northern Sonora (2), and Arizona (1)	91.2	45	18.3	17.9	14.3

As to coloration, the specimens from southern Chihuahua are decidedly nearer typical *mexicana* than to *nelsoni*.

Sitta carolinensis mexicana NELSON and PALMER (T. S.), Auk, xi, Jan., 1894, 45 (Mount Orizaba, Puebla, Mexico; coll. U. S. Nat. Mus.).—COX, Auk, xii, 1895, 358 (Mount Orizaba, 9,000 ft.).—CHAPMAN, Bull. Am. Mus. N. H., x, 1898, 39 (Las Vigas, Vera Cruz, 8,000 ft.).

S[itta] carolinensis mexicana HELLMAYR, Tierreich, 18 Lief., 1903, 189.

SITTA CANADENSIS Linnaeus.

RED-BREASTED NUTCRACKER.

Adult male in spring and summer.—Pileum uniform black, with a faint bluish gloss; a broad white superciliary stripe (extending from sides of forehead to sides of nape, narrower anteriorly); below this a black stripe involving loreal and upper portion of auricular regions and continued, more broadly, over sides of neck; back, scapulars, rump, upper tail-coverts, middle pair of rectrices, wing-coverts, and tertials uniform bluish-gray or deep plumbeous; secondaries and primaries dull slate color, with gray edgings; rectrices (except middle pair) black, tipped with gray, the two or three outermost with a subterminal band (usually interrupted) or spot of white, both the gray and white most extensive on lateral rectrix; suborbital and lower portion of auricular regions and lower part of sides of neck white; chin and upper throat duller white, gradually deepening posteriorly through pale buff on lower throat to tawny-buff or dull ochraceous-buff on flanks, anal region, and shorter under tail-coverts, the longer under tail-coverts paler buff or buffy white, with concealed portion pale gray; maxilla black; mandible dusky terminally, pale grayish (pale bluish gray in life); iris brown; legs and feet horn color or dusky (in dried skins).

Adult male in autumn and winter.—Similar to the spring and summer plumage, but under parts more deeply colored (mostly ochraceous-buff, deeper on flanks) and black of head more glossy.

Adult female.—Similar to the adult male, but black of pileum and hindneck replaced by plumbeous (usually darker than but sometimes concolor with the color of the back), that of stripe on side of head dull black or slaty, and under parts averaging slightly paler.

Young male.—Essentially like the adult male, but black of head much duller (without gloss) and less sharply defined.

Young female.—Similar to the adult female, but gray of pileum duller and less sharply defined laterally, and under parts paler and duller.

Adult male.—Length (skins), 100–116 (107); wing, 66.5–70 (68.2); tail, 35.5–39 (37.2); culmen, 13.5–17.5 (14.6); tarsus, 15–17 (16.1); middle toe, 11–13 (12).^a

^a Twenty-two specimens.

Adult female.—Length (skins), 94.5–111 (102.1); wing, 63–68 (65.2); tail, 33–37.5 (34.7); culmen, 12.5–14.5 (13.8); tarsus, 14.5–16.5 (15.8); middle toe, 11–12 (11.5).^a

Forest districts of northern North America and higher mountains of United States; north to Labrador (Natashquan Point), Keewatin (Repulse Bay, Echimamish, between York Factory and Fort Churchill, etc.), Yukon District (Log Cabin, junction of Lewes and Pelly rivers, etc.), and southern Alaska (Skagway); breeding southward to Massachusetts (Worcester, Plymouth, and Berkshire counties), New York (Oneida County), Pennsylvania (Sullivan County), northern Indiana (Carroll County), northern Illinois (Ogle County), central Iowa (Jasper County), and along the higher Alleghenies to western North Carolina (where breeding above 5,000 feet); in western United States breeding in spruce forests on higher mountains south to Colorado and the Sierra Nevada, in California; breeding also on Guadalupe Island, Lower California! In winter south to or near the Gulf coast and to New Mexico and Arizona, probably to northern Mexico.

[*Sitta*] *canadensis* LINNÆUS, Syst. Nat., ed. 12, i, 1766, 177 (based on *Sitta canadensis* Brisson, Orn. iii, 593, pl. 29, fig. 4).—GMELIN, Syst. Nat., i, 1788, 441.—LATHAM, Index Orn., i, 1790, 262.

Sitta canadensis BODDERT, Tabl. Pl. Enl., 1783. 38 (ex *Le Forchepot, du Canada* Daubenton, Pl. Enl. 623, fig. 2).—BONAPARTE, Am. Lyc., N. Y., ii, 1826, 96; Geog. and Comp. List, 1838, 10; Consp. Av., i, 1850, 227.—NUTTALL, Man. Orn. U. S. and Can., i, 1832, 583; 2d ed., 1840, i, 697.—AUDUBON, Orn. Biog., ii, 1834, 24, pl. 105; Synopsis, 1839, 167; Birds Am., oct. ed., iv, 1842, 179, pl. 248.—SWAINSON, Classif. Birds, 1837, 318.—ORNITHOLOGICAL COMMITTEE, Journ. Ac. Nat. Sci. Phila., vii, 1837, 193 (Columbia R.).—TOWNSEND, Journ. Ac. Nat. Sci. Phila., viii, 1839, 155.—GAMBEL, Proc. Ac. Nat. Sci. Phila., iii, 1846, 112 (California).—MCCALL, Proc. Ac. Nat. Sci. Phila., 1851, 215 (Texas).—CABOT, Naumannia, ii, Heft iii, 1852, 66 (Lake Superior).—REICHENBACH, Handb. Abh., ii, 1853, 152, pl. 513, figs.

^a Sixteen specimens.

Eastern, Rocky Mountain, and Pacific coast specimens average, respectively, as follows:

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Middle toe.
MALES.					
Ten adult males from eastern United States.....	68	36.9	14.9	16.1	12
Eight adult males from Rocky Mountain district.....	68	37.1	14.2	16.1	11.7
Four adult males from California.....	68.7	38	14.4	16.2	12.6
FEMALES.					
Ten adult females from eastern United States.....	65.8	34.8	13.9	16	11.5
Five adult females from Rocky Mountain district.....	64.4	34	13.6	15.5	11.7
One adult female from California.....	65.2	34.7	13.8	15.8	11.5

I am unable to appreciate any difference in coloration between specimens from extreme eastern and western or intermediate localities.

3561-3562.—HENRY, *Proc. Ac. Nat. Sci. Phila.*, vii, 1855, 313 (New Mexico); xi, 1859, 107 (do.).—BAIRD, *Rep. Pacific R. R. Surv.*, ix, 1858, 376; *Cat. N. Am. Birds*, 1859, no. 279; *Rep. Ives' Expl. Col. R.*, pt. vi, 1861, 6 (Fort Yuma); *Review Am. Birds*, 1864, 87.—WILLIS, *Ann. Rep. Smithsonian Inst. for 1858 (1859)*, 283 (Nova Scotia).—COOPER and SUCKLEY, *Rep. Pacific R. R. Surv.*, xii, pt. ii, 1860, 192 (Cascade Mts., Washington).—SCLATER, *Cat. Am. Birds*, 1862, 15 (Philadelphia); *Ibis*, 1865, 311 (Repulse Bay; a side Melville Peninsula).—BLAKISTON, *Ibis*, 1862, 5 (Saskatchewan); 1863, 67 (Red River Settlement).—VERRILL, *Proc. Bost. Soc. N. H.*, ix, 1862, 133 (Antecosti I.); *Proc. Essex Inst.*, iv, 1864, 69.—HAYDEN, *Trans. Am. Phila. Soc.*, xii, 1863, 164 (Cedar I., Missouri R., Black Hills).—FEILNER, *Ann. Rep. Smithsonian Inst. for 1864 (1865)*, 426 (n. California; habits).—MCLWRAITH, *Proc. Essex Inst.*, v, 1866, 88 (Hamilton, Ontario).—COWS, *Proc. Ac. Nat. Sci. Phila.*, xviii, 1866, 79 (Fort Whipple, Arizona); *Check List*, 1873, no. 39; 2d ed., 1882, no. 59; *Birds N. W.*, 1874, 25; *Birds Col. Val.*, 1878, 136.—BROWN, *Ibis*, 1868, 421 (Vancouver I.).—COOPER, *Orn. Cal.*, 1870, 54.—STEVENSON, *Prelim. Rep. U. S. Geol. Surv.*, 1871, 464 (Green R., Fort Bridger, Henrys Fork, etc., Wyoming).—BAIRD, BREWER, and RIDGWAY, *Hist. N. Am. Birds*, i, 1874, 118, pl. 8, figs. 7, 8.—HENSEHAW, *Rep. Orn. Spec. Wheeler's Surv.*, 1874, 73 (Fort Garland, Colorado, breeding; descr. nest and eggs), 155 (Arizona); *Orn. Rep. Wheeler's Surv.*, 1876, 230 (Mount Whitney, California, Oct.); *Zool. Exp. W. 100th Merid.*, 1875, 174 (do.; habits).—RIDGWAY, *Bull. Essex Inst.*, vii, 1875, 32 (Wahsatch Mts., Utah, breeding); *Orn. 40th Parallel*, 1877, 416 (Sierra Nevada, Wahsatch, and Uintah Mts., breeding in pine forests; up. Humboldt Valley and Clover Mts. n. e. Nevada, Sept.); *Nom. N. Am. Birds*, 1881, no. 52; *Orn. Illinois*, i, 1889, 84.—BREWSTER, *Bull. Nutt. Orn. Club*, iii, 1878, 20 (descr. young and adult female); *Auk*, iii, 1886, 176 (Black Mts., w. North Carolina, breeding above 5,000 ft.); v, 1888, 392 (Winchenden, Massachusetts, breeding).—HARDY, *Bull. Nutt. Orn. Club*, iii, 1878, 196 (breeding habits).—LOOMA, *Bull. Nutt. Orn. Club*, iv, 1879, 211 (Chester Co., South Carolina, 1 spec., Feb. 24, 1877).—FOX, *Bull. Nutt. Orn. Club*, vii, 1882, 192 (Lookout Mt. Tennessee, 1 spec., Mar. 24).—GADOW, *Cat. Birds Brit. Mus.*, viii, 1883, 354 (Repulse Bay, n. Keewatin; Muskoka, Ontario; Sumass, Brit. Columbia, etc.).—AMERICAN ORNITHOLOGISTS' UNION, *Check List*, 1886, no. 728.—BECKHAM, *Auk*, iii, 1886, 489 (Bardstown, Kentucky, 1 spec., July 16).—ALLEN, *Bull. Am. Mus. N. H.*, i, 1886, 261 (Berkshire Co., Massachusetts, breeding).—BRYANT, *Bull. Cal. Ac. Sci.*, ii, 1887, 313 (Guadalupe I., Lower California, breeding!).—AVERILL, *Auk*, v, 1888, 118 (feeding habits).—SCOTT, *Auk*, v, 1888, 165 (Santa Catalina Mts., Arizona, 1 spec., Oct. 29, 1885).—EVERMANN, *Auk*, vi, 1889, 29 (near Burlington, Carroll Co., Indiana, breeding?).—COOKE, *Bird Migr. Miss. Val.*, 1888, 276 (winters from Minnesota to Gulf of Mexico; breeding at Polo, n. Illinois? and Newton, centr. Iowa); *Bull. 37, Col. State Agric. Coll.*, 1897, 122 (Colorado; resident, breeding from 8,000-10,000 ft.).—RALPH and BAGG, *Auk*, vii, 1890, 232 (Oneida Co., New York, breeding).—PALMER (W.), *Proc. U. S. Nat. Mus.*, xiii, 1890, 265 (Natashquan Point, Labrador).—FISHER (A. K.), *North Am. Fauna*, no. 7, 1893, 137 (s. Sierra Nevada: Monterey, California, Sept., Oct.).—DWIGHT, *Auk*, x, 1893, 14 (Prince Edward I., breeding; habits).—WHITE, *Auk*, x, 1893, 229 (Mackinac I., Michigan, breeding).—INGALLS, *Auk*, xi, 1894, 331 (Templeton, Massachusetts, breeding; descr. nest).—WAYNE, *Auk*, xiii, 1896, 85 (Long I., South Carolina, 2 specs., Nov. 14, 1895).—CHADBOURNE, *Auk*, xiii, 1896, 346

- (Plymouth Co., Massachusetts; breeding?).—STONE, Auk, xiv, 1897, 324 (near Lopez, Sullivan Co., Pennsylvania, breeding).—MERRILL (J. C.), Auk, xv, 1898, 20 (Fort Sherman, Idaho, breeding).—DEARBORN, Prelim. List Birds Belknap and Merrimack counties, N. H., 1898, 33 (breeding).—RIVES, Auk, xv, 1898, 137 (West Virginia, breeding in spruce belt).—FAXON and HOFFMANN, Birds Berkshire Co., Massachusetts, 1900, 12 (breeding in spruce belt of Saddle Mt. and Hoosac Mts.).—BISHOP, North Am. Fauna, no. 10, 1900, 92 (Skagway, Log Cabin, and junction of Lewes and Pelly rivers, Alaska).—CHAPMAN, Bull. Am. Mus. N. H., iii, 1900, 153 (Westminster and Ducks, British Columbia).—FARLEY, Auk, xviii, 1901, 198 (Medford, Massachusetts; breeding?).—PREBLE, North Am. Fauna, no. 22, 1902, 128 (Echiamish, Knee Lake, and bet. York Factory and Fort Churchill, Keewatin).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 454.
- Sitta canadensis* GAMBEL, Journ. Ac. Nat. Sci. Phila., ii, 1847, 33 (California).—NELSON, Bull. Essex Inst., viii, 1876, 96, 153 (n. e. Illinois; rare summer resident).—HENSHAW, Orn. Rep. Wheeler's Surv., 1879, 288 (both sides of Sierra Nevada to Columbia R.).—COUES, Key N. Am. Birds, 2d ed., 1884, 271.—RIDGWAY, Man. N. Am. Birds, 1887, 559.—HELLMAYR, Tierreich, 18 Lief., 1903, 185.
- [*Sitta*] *canadensis* COUES, Key N. Am. Birds, 1872, 83.
- Sitta varia* WILSON, Am. Orn., i, 1808, 40, pl. 2, fig. 4 (ex *Sitta varia*, ventre rubro, etc., Bartram, Travels, 1st Am. ed., p. 289 bis.).—BONAPARTE, Journ. Ac. Nat. Sci. Phila., iv, 1824, 275.
- Sitta varia* BONAPARTE, Journ. Nat. Sci. Phila., iv, 1824, 25.
- Sitta stulta* VIEILLLOT, Nouv. Dict. d'Hist. Nat., xxxi, 1819, 332 (based on *Sitta varia* Wilson, Am. Orn., pl. 2, fig. 4).
- (?) *Sitta melanocephala* (not of Vieillot, 1819) LESSON, Traité d'Orn., 1831, 316, part (cites *Sitta canadensis* Gmelin).

SITTA FUSILLA Latham.

BROWN-HEADED NUTHATCH.

Adults (sexes alike) in spring and summer.—Entire pileum and lateral portions of hindneck, together with loreal and upper half of auricular regions, plain light grayish brown (broccoli brown or drab), the tips of the feather sometimes considerably paler; median portion of hindneck white, forming a conspicuous spot; back, scapulars; rump, upper-tail coverts and lesser wing-coverts, uniform bluish gray or plumbeous, the middle and greater wing-coverts, tertials, and middle pair of rectrices similar but less bluish gray; secondaries and primaries dull or brownish slate color, with pale gray edgings; tail (except middle pair of rectrices), black, the three outermost rectrices broadly tipped with gray, the two outermost crossed by a subterminal band (incomplete) of white—both the terminal gray and the subterminal white more extensive on the lateral rectrix; suborbital region, lower half of auricular region, malar region, chin, and upper throat white; rest of under parts dull white, usually more or less tinged with buff, passing into light bluish gray on sides and flanks; maxilla slate-blackish;

mandible dusky terminally, pale basally (pale bluish gray in life), iris brown; legs and feet dusky (in dried skins).

Adults in autumn.^a—Similar to the spring and summer plumage, but brown of the head and neck much darker and more uniform (varying in hue from a color intermediate between raw umber and burnt umber to sepia), and under parts, except chin, sides, and flanks, more strongly buffy.

Young.—Essentially like adults, but coloration duller, with the brown of head and neck much grayer or replaced by gray, the white spot on center of hindneck indistinct or obsolete, gray of back, etc., less bluish, greater wing-coverts edged or washed with pale brownish buff, and gray of sides and flanks replaced by dull brownish buff.

Adult male.—Length (skins), 89.5–103 (97.3); wing, 60–69 (63.7); tail, 28.5–34.5 (30.8); culmen, 13–16 (14.5); tarsus, 14–16 (14.7); middle toe, 10–12 (11.2).^b

Adult female.—Length (skins), 90.5–104 (97.8); wing, 58.5–67.5 (63.3); tail, 28–33.5 (31); culmen 13–16 (14.3); tarsus, 13–15.5 (14.8); middle toe, 10.5–12 (11.3).^b

Coast pine belt of southeastern United States, from southern Maryland (St. Mary County) and southern Delaware to Florida and eastern

^a This plumage is sometimes retained as late as December, but is at its best in September. It is assumed in latter part of July (at least in Maryland and Virginia) and fades rather rapidly, most examples taken in December being nearly, if not quite, like those taken in late winter to early summer.

^b Twenty specimens.

Florida specimens compare in average measurements with those from Maryland, Virginia, and North Carolina, as follows:

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Middle toe.
MALES.					
Ten adult males from Maryland to North Carolina.....	66	32.1	14.6	15.4	11.5
Ten adult males from Florida	61.4	29.5	14.1	14.5	10.9
FEMALES.					
Ten adult females from Maryland to North Carolina.....	64.9	31.9	14.5	14.9	11.4
Ten adult females from Florida	61.6	30.1	14.1	14.6	11.1

So far as I am able to discern, there is no difference in coloration. In the Florida series examined (consisting of 66 adults) there are none obtained earlier in the season than December, yet among them are two (one from Fort Myers, December 9, the other from Kissimmee, January 26) which have the brown of the head exactly as dark as in September birds from Maryland and Virginia, the remainder being absolutely identical in coloration, so far as I am able to see, with late winter to summer birds from the last-mentioned States.

Specimens from Texas (Jasper, Tyler, and Montgomery counties) are quite identical in coloration with those from Maryland.

Texas (Jasper, Tyler, Montgomery, and Rockland counties); northward, irregularly or casually, to New York (Elmira), Ohio, southern Michigan (Locke, Ingham County), Missouri (St. Louis, two specimens), and Arkansas (Newport, Jackson County); Bahamas (Great Bahama Island).

[*Sitta europaea*] δ . GMELIN, Syst., Nat., i, 1788, 440 (cites *Sitta carolinensis minor* Brisson, Orn., iii, 598, pl. 5, etc.).

[*Sitta pusilla* LATHAM, Index Orn., i, 1790, 263 (based on *Sitta carolinensis minor* Brisson, Orn., iii, 598, pl. 5; *Le Petit sittelle à tête brune* Daubenton, Pl. Enl., v, pl. 314; *Least Nuthatch* Latham, Synopsis Birds, ii, 651 C., etc.).

Sitta pusilla WILSON, Am. Orn., ii, 1810, 105, pl. 15, fig. 2.—VIEILLLOT, Nouv. Dict. d'Hist. Nat., xxxi, 1819, 335.—BONAPARTE, Ann. Lyc. N. Y., ii, 1826, 97.—LESSON, Traité d'Orn., 1831, 316.—NUTTALL, Man. Orn. U. S. and Can., i, 1832, 584.—AUDUBON, Orn. Biog., ii, 1834, 151, pl. 125; Synopsis, 1839, 168; Birds Am., oct. ed., iv, 1842, 181, pl. 249.—SWAINSON, Classif. Birds, 1837, 318.—BONAPARTE, Consp. Av., i, 1850, 227.—REICHENBACH, Handb., Scans., 1853, 153, pl. 514, figs. 3567-8.—BAIRD, Rep. Pacific R. R. Surv., ix., 1858, 377; Cat. N. Am. Birds, 1859, no. 280; Review Am. Birds, 1864, 88.—SLATER, Cat. Am. Birds, 1862, 15 (South Carolina); Ibis, 1865, 311 (South Carolina, Georgia).—ALLEN, Bull. Mus. Comp. Zool., ii, 1871, 265 (e. Florida).—COUES, Check List, 1873, no. 40; 2d ed., 1873, no. 60.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i., 1874, 122, pl. 8, fig. 9; iii, 1874, 502 (Aiken, South Carolina; descr. young).—BROWN (N. C.), Bull. Nutt. Orn. Club, iii, 1878, 171 (Coosada, Alabama; habits; notes; descr. nest and eggs).—WHEATON, Birds of Ohio, 1879, 226 (n. Ohio, 1 spec.; Locke, Ingham Co., Michigan, 1 spec.).—WIDMANN, Bull. Nutt. Orn. Club, v, 1880, 191 (St. Louis, Missouri, May 6, 1878; second spec.).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 53.—BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 98 (St. Marys, Georgia; habits).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 356.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 729.—COOKE, Bird Migr. Miss. Val., 1888, 276 (Newport, Arkansas; St. Louis, Missouri; Ohio, accidental).—SWIFT, Auk, v, 1888, 432 (near Elmira, New York, 1 spec., May 24, 1888).—LOOMIS, Auk, vii, 1890, 130 (Pickens Co., South Carolina, up to 2,000 ft.).—CORY, Auk, viii, 1890, 350 (Great Bahama I., Bahamas); Cat. W. I. Birds, 1892, 120 (Great Bahama).—BEYER, Proc. Louisiana Soc. Nat. for 1897-99 (1900), 43 (resident).

S[itta] pusilla BONAPARTE, Jour. Ac. Nat. Sci. Phila., iv, 1824, 26.—COUES, Key N. Am. Birds, 2d ed., 1884, 271.—RIDGWAY, Man. N. Am. Birds, 1887, 560.

S[itta] pusilla pusilla BANGS, Auk, xv, Apr., 1898, 181, footnote.—HELLMAYR, Tierreich, 18 Lief., 1903, 189.

Sitta minor BECHSTEIN, Latham's Uebers., Vög., i, 1793, p. 533, footnote in text (based on *Sitta europaea* δ Gmelin, Syst. Nat. i, 440).

S[itta] minor SUCKOW, Auf. Naturg. des Thiere, ii, pt. i, 1800, 564.

Sitta pusilla caniceps BANGS, Auk, xv, Apr. 1898, 180 (Clear Water, Hillsboro Co., Florida; coll. E. A. and O. Bangs).

S[itta] pusilla caniceps HELLMAYR, Tierreich, 18 Lief., Mar., 1903, 190.

SITTA PYGMÆA PYGMÆA Vigors.

PYGMY NUTHATCH.

Similar to *S. pusilla* but pileum and hindneck olive instead of brown, white spot on center of hindneck obsolete or indistinct, and middle rectrices with basal half of inner web white.

Adults (sexes alike) in late winter to early summer.—Pileum and hindneck plain light grayish olive or olive-gray, the lower central portion of the latter with concealed portion of feathers buffy white or pale buff (exposed as a more or less conspicuous spot in worn plumage); loreal and postocular regions dusky or blackish; back, scapulars, wing-coverts (except primary coverts), tertials, rump, upper tail-coverts, and middle pair of rectrices plain deep bluish gray or plumbeous, the last with a conspicuous elongated, posteriorly acuminate, patch of white, occupying basal half or more of inner web, but less on outer web, on which the gray of terminal portion extends marginally to the base, the contracted basal portion becoming blackish; rest of tail black, the three outermost rectrices tipped with slate color (very broadly on outer one), the two outer, on each side, crossed, obliquely, by a broad bar or band of white; secondaries (except tertials), primaries, primary coverts, and alula brownish slate color, the secondaries, innermost primaries, primary coverts, and shorter feathers of alula edged with bluish gray, the longer primaries usually more or less edged with white; suborbital, lower half of auricular, and malar regions, chin, and upper throat white or buffy white; rest of under parts dull buffy white (in worn midsummer plumage) or pale dull buffy, passing into pale bluish gray on sides and flanks; maxilla blackish; mandible dusky gray terminally, pale (pale bluish gray in life) basally; iris brown; legs and feet dusky or dark horn color (in dried skins).

Adults in late summer to early winter.—Similar to the plumage described above, but coloration deeper (under parts mostly pronounced buff) and pale spot on lower hindneck indistinct or obsolete through concealment by olive or olive-gray tips to the feathers.

Young.—Similar to adults, but pileum and hindneck gray, only slightly, if at all, different from color of back, and sides and flanks pale buffy brown or brownish buff instead of gray.

Adult male.—Length (skins), 90–107.5 (95); wing, 62–69.5 (64.9); tail, 31.5–37.5 (34.3); culmen, 13–15.5 (14.1); tarsus, 14–16 (14.9); middle toe, 10.5–12.5 (11.5).^a

Adult female.—Length (skins), 88–108 (98); wing, 60–67 (63.5); tail,

^aThirty-two specimens.

32-36 (33.7); culmen, 12.5-15.5 (14.3); tarsus, 13.5-16 (14.9); middle toe, 10.5-12 (11.2).^a

Mountains of western North America and Mexico, in coniferous forests; north to British Columbia (Vancouver Island and interior); south to States of Vera Cruz (Jalapa, Orizaba, Las Vegas, etc.), Puebla (Mount Orizaba), Mexico (Mount Popocatepetl; Mount Iztaccihuatl), etc., southern Mexico; east to Montana, Wyoming, Colorado, New Mexico, etc., casually to northern Nebraska (one specimen).

Sitta pygmaea VIGORS, Zool. Voy. "Blossom," 1839, 25, pl. 4, fig. 2 (Monterey, California).—BONAPARTE, Geog. and Comp. List, 1838, 10.—AUDUBON, Orn. Biog., v, 1839, 63, pl. 415; Synopsis, 1839, 168.—GAMBEL, Proc. Ac. Nat. Sci. Phila., iii, 1846, 112 (Monterey, etc., California; habits; notes).—SCLATER, Proc. Zool. Soc. Lond., 1859, 363 (Jalapa, Vera Cruz); Cat. Am. Birds, 1862, 15 (Jalapa); Ibis, 1865, 311 (Jalapa, etc.).—BAIRD, Rep. Ives' Expl. Col. R., pt. v, 1861, 6; Review Am. Birds, 1864, 88.—FEILNER, Ann. Rep. Smithsonian Inst. for 1864 (1865), 426 (n. California; habits).—COUES, Proc. Ac. Nat. Sci. Phila., xviii, 1866, 78 (Fort Whipple, Arizona); Check List, 1873, no. 41; 2d ed., 1882, no. 61; Birds N. W., 1874, 25; Birds Col. Val., 1878, 139.—BROWN,

^a Twenty-two specimens.

Specimens from different localities compare in average measurements as follows:

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Middle toe.
MALES.					
Ten adult males (of <i>S. p. leuconucha</i>) from San Pedro Martir Mountains	66.8	36.7	16.3	16	11.5
Two adult males from California	62.2	33.2	14.7	14.5	12
Five adult males from western Nevada and eastern Oregon ..	63.8	34.5	14.4	14.9	11.2
Four adult males from Colorado	66.1	34.1	14.1	14.9	11.4
Seven adult males from Arizona	64.3	33.9	14.5	14.9	11.6
Three adult males from northern Sonora	63.5	33.3	13.8	14.7	11.5
Two adult males from northern Chihuahua	65.5	33.7	14	14.7	11.2
One adult male from southern Chihuahua	65	36	14	14.5	11
Eight adult males from south-central Mexico	66.1	35.1	13.4	15.4	11.5
FEMALES.					
Ten adult females (of <i>S. p. leuconucha</i>) from San Pedro Martir Mountains	67	35.3	15.7	16	11.9
One adult female from California	61.5	33	15	14.5	11.5
Six adult females from western Nevada and eastern Oregon ..	63	34	14.5	14.7	11.4
Three adult females from Colorado	63.5	33.5	14.2	14.7	11
Two adult females from Arizona	64.2	34.2	15	15.2	11
Six adult females from northern Sonora and Chihuahua ..	63.3	33	14.7	14.9	11.2
One adult female from southern Chihuahua	63	33	14.5	15	12 *
Four adult females from south-central Mexico	64.5	34.4	13.2	15.1	11.4

After very careful comparison of the above series, together with many additional specimens, I am not able to discern any obvious difference in coloration according to locality. Possibly the Mexican and California specimens have the pileum more decidedly olive (less gray) than those from the Rocky Mountain district and the under parts more pronouncedly buff in winter plumage; but the California series is much too small to permit of satisfactory comparison.

- Ibis, 1868, 421 (Vancouver I.).—COOPER, Am. Nat., iii, 1869, 299 (Sun R. Montana); Orn. Cal., 1870, 55.—SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 544 (alpine reg. Orizaba and Popocatepetl).—AIKEN, Proc. Bost. Soc. N. H., xv, 1872, 195 (Colorado; habits).—BAIRD, BREWER, and RIDGEWAY, Hist. N. Am. Birds, i, 1874, 120, pl. 8, fig. 10; iii, 1874, 502.—TRIPPE, in COUES' Birds N. W., 1874, 230 (mountains of Colorado, breeding from 6,000-9,000 ft.; habits).—YARROW and HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 8 (Wahsatch Mts., Utah).—HENSHAW, Zool. Exp. W. 100th merid., 1875, 175 (localities in Colorado, New Mexico, and Arizona; habits).—RIDGWAY, Bull. Essex Inst., vi, 1874, 173 (Sierra Nevada); Orn. 40th parallel, 1877, 417 (Sierra Nevada, near Carson City; habits); Nom. N. Am. Birds, 1881, no. 54.—BENDIRE, Proc. Bost. Soc. N. H., 1877, 112 (Camp Harney, c. Oregon; descr. nest).—SALVIN and GODMAN, Biol. Centr.-Am. Aves., i, 1880, 60.—GADOW, Cat. Birds Brit. Mus., viii, 1883, 355.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 730.—ANTHONY, Auk, iii, 1886, 171 (Washington Co., Oregon).—MERRILL (J. C.), Auk, v, 1888, 363 (Fort Klamath, Oregon, resident; habits); xv, 1898, 20 (Fort Sherman, Idaho, resident).—COOKE, Bird Migr. Miss. Val., 1888, 276 (n. Nebraska, accidental); Bull. 37, Col. State Agric. Coll., 1897, 122 (Colorado, resident, breeding from 6,000-10,000 ft.).—FANNIN, Check List Birds Brit. Col., 1891, 43 (e. side Cascade range).—ALLEN, Bull. Am. Mus. N. H., v, 1893, 41 (Bavispe R. and Tatuaco, n. Sonora).—FISHER (A. K.), North Am. Fauna, no. 7, 1893, 137 (Charleston Mts., Nevada; localities in California).—CHAPMAN, Bull. Am. Mus. N. H., iii, 1890, 153 (Ducks, int. Brit. Columbia); x, 1898, 39 (Las Vegas, Vera Cruz, breeding at 8,000 ft.).—BROOKS, Auk, xvii, 1900, 107 (British Columbia, in *Pinus ponderosa* belt).—OBERHOLSER, Auk, xix, 1902, 301 (Guadalupe Mts., w. Texas).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 454, pl.
- [*Sitta pygmaea* COUES, Key N. Am. Birds, 1872, 83.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 5 (Mexico).
- S[itta] pygmaea* GAMBEL, Journ. Ac. Nat. Sci. Phila., ii, 1847, 33 (Monterey, California; habits; notes).—COOPER, Am. Nat., iii, 1869, 74 (e. base Rocky Mts. to Spokane R. and Fort Colville); viii, 1874, 17 (Cuyamaca Mts., San Diego Co., California).—HENSHAW, Orn. Rep. Wheeler's Surv., 1879, 289 (Sierra Nevada and Cascade Mts.).—COUES, Key N. Am. Birds, 2d ed., 1884, 271.—RIDGWAY, Man. N. Am. Birds, 1887, 560.
- Sitta pygmaea pygmaea* GRINNELL (J.), Pacific Coast Avifauna, no. 3, June 25, 1902, 70.
- S[itta] pygmaea pygmaea* HELLMAYR, Tierreich, 18. Lief., Mar., 1903, 190.
- Sitta pygmaea* AUDUBON, Birds Am., oct. ed., iv, 1842, 184, pl. 250.—WOODHOUSE in Rep. Sitgreaves' Expl. Zuni and Colorado R., 1853, 66 (San Francisco Mt., Arizona).—HENRY, Proc. Ac. Nat. Sci. Phila., vii, 1855, 313 (New Mexico); xi, 1859, 107 (do.).—NEWBERRY, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 79 (California).
- Sitta pygmaea* BONAPARTE, Conspect. Av., i, 1850, 227.—REICHENBACH, Handb. Scansores, 1853, 153, pl. 514, figs. 3365-6.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 378; Cat. N. Am. Birds, 1859, no. 281.—KENNERLY, Rep. Pacific R. R. Surv., x, pt. vi, 1859, 26 (San Francisco Mts., Arizona, etc.).—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 193 (Fort Colville, etc., Washington).
- Sitta pygmaea* COOPER, Am. Nat., iv., 1871, 757 (Monterey, California).—COX, Auk, xii, 1895, 358 (Mount Orizaba, Puebla, 11,000 ft.; City of Orizaba).
- Sitta pusilla* var. *pygmaea* ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 174 (Colorado).—RIDGWAY, Bull. Essex Inst., v, Nov., 1873, 180 (Colorado).

Sitta pusilla pygmæa RIDGWAY, Bull. Essex Inst., vi, Oct., 1874, 173 (e. slope Sierra Nevada).

Sitta pusilla . . . var. *pygmæa* HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 40 (Utah), 73 (near Fort Garland, Colorado, June; habits), 100 (Inscription Rock, New Mexico, July 24; near source of Gila R., New Mexico; habits), 155 (Arizona).

SITTA PYGMÆA LEUCONUCHA Anthony.

WHITE-NAPED NUTHATCH.

Similar to *S. p. pygmæa*, but larger, especially the bill; color of pileum and hind neck grayer, the latter with the buffy whitish or pale buff spot decidedly larger; gray of back, etc., less bluish, and under parts less strongly buffy.

Adult male.—Length (skins), 95.5–111 (102.5); wing, 65.5–70 (66.8); tail, 34.5–38.5 (36.7); culmen, 15–17.5 (16.3); tarsus, 15–16.5 (16); middle toe, 11–12 (11.5).^a

Adult female.—Length (skins), 95.5–108.5 (101.8); wing, 65–69.5 (67); tail 32.5–37.5 (35.3); culmen, 15–16.5 (15.7); tarsus, 15.5–16.5 (16); middle toe, 11.5–12.5 (11.9).^a

San Pedro Martir Mountains, northern Lower California, and northward to mountains of San Diego County, California (Pine Valley, Laguna, etc.).

Sitta pygmæa leuconucha ANTHONY, Proc. Cal. Acad. Sci., 2d ser., ii, Oct. 11, 1889, 77 (San Pedro Martir Mts., Lower California; coll. A. W. Anthony); Zoe, iv, 1893, 246 (San Pedro Martir Mts.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, vii, 1890, 64; Check List, 2d ed., 1895, no. 730a.—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 610.

Sitta pygmæa leuconucha HELLMAYR, Tierreich, 18. Lief., 1903, 191.

Family CERTHIIDÆ.

THE CREEPERS.

Small "ten-primaried," slender-billed, scansorial acutiplantar Oscines with the bill more or less curved (at least terminally), the hallux (without claw) shorter than outer toe (without claw), the outer toe reaching to or beyond middle of penultimate phalanx of middle toe, the inner toe reaching only to second joint of middle toe or (in *Climacteris*) not so far; claws large, very strongly curved, that of the hallux as long as or longer than the digit (except in *Climacteris*); nostril wholly exposed, linear, longitudinal, overhung by a distinct operculum; rectal bristles obsolete; tenth (outermost) primary more than one-third (sometimes more than one-half) as long as ninth.

Bill variable as to relative length and extent of curvature, but never conspicuously shorter than head, nor straight at tip; culmen distinctly

^a Ten specimens.

ridged; tip of maxilla never uncinatè and tomia never notched. Nostrils wholly exposed, linear, longitudinal, overhung by a distinct (usually broad) operculum. Latero-frontal feathers not directed forward; rictal bristles obsolete. Wing rather long but rounded; eighth, seventh, and sixth, or seventh, sixth, and fifth, primaries longest, the ninth shorter than sixth (sometimes shorter than fourth), the tenth not less than one-third nor much more than half as long as ninth. Tail variable as to relative length and shape of rectrices, but either (1) much shorter than wing (sometimes but little more than half as long), even, or very slightly rounded, with rectrices broad and rounded at tip, or (2) nearly as long as wing, graduated, with rectrices stiffened and acuminate at tip. Tarsus longer than middle toe without claw, the acrotarsium distinctly scutellate; lateral toes very unequal in length, the outer (without claw) reaching to beyond middle of subterminal phalanx of middle toe, the inner reaching but little, if any, beyond second joint of middle toe, or else (in Subfamily Climacterinæ) the outer reaching to but not beyond the subterminal phalanx of middle toe and the inner falling short of second joint of middle toe; hallux (without claw) shorter than outer toe (without claw) but longer than inner, its claw as long as or longer than the digit (except in Climacterinæ); basal phalanx of middle toe adherent for its entire length to outer toe (half the subbasal phalanx also united in Climacterinæ), for nearly the whole length to inner toe (in Certhiinae), for its entire length (in Climacterinæ), or only half its length (in Tichodrominae).

Coloration.—(See key to the subfamilies, on pages 460, 461.)

Range.—Entire Palearctic and Nearctic regions; Australia (where represented by a peculiar subfamily).

The preceding characters are drawn up from only three of the five genera usually referred to this family, the other two *Salpornis* Gray^a and *Rhabdornis* Reichenbach^b not being available for comparison.

The three genera which I have examined—*Certhia* Linnæus, *Tichodroma* Illiger^c and *Climacteris* Temminck,^d are so very unlike one another in many characters that there is reasonable ground for doubt as to the correctness of their being associated together in a single family. At any rate, they certainly should represent separate subfamilies, whose external characters may be given as follows:

- aa. Outer toe (without claw) reaching beyond middle of subterminal phalanx of middle toe, the inner toe reaching to or slightly beyond second (middle) joint of middle toe; hallux with claw as long as or longer than the digit; middle toe united to outer toe only by basal phalanx.

^a *Salpornis* Gray, Proc. Zool. Soc. Lond., 1847, 7 (type, *Certhia spilonota* Franklin).

^b *Rhabdornis* Reichenbach, Handb. Spec. Orn., Scansores, 1853, 16 (type, *Meliphaga mystacalis* Temminck).

^c *Tichodroma* Illiger, Prodromus Syst., 1811, 210 (type, *Certhia muraria* Linnæus).

^d *Climacteris* Temminck, Man. d'Orn., 1820, p. lxxxv (type, *C. scandens* Temminck).

- b. Bill distinctly curved and much compressed; tail nearly as long as wing, graduated, the rectrices rigid and acuminate; basal phalanx of middle toe united to inner toe for more than half its length; upper parts conspicuously streaked, with brown or tawny hues prevailing; no red on wings nor white spots on inner webs of primaries nor white on rectrices. (Palearctic and Nearctic.) *Certhiinae*
- bb. Bill straight with extreme tip very slightly decurved, depressed; tail a little more than half as long as wing, even or very slightly rounded, the rectrices soft (normal), broad and rounded at tip; basal phalanx of middle toe united to inner toe only at base; upper parts plain gray, the wings blackish with bright rose red on remiges and primary coverts; inner webs of larger primaries with two large white spots and outer rectrices extensively white terminally. (Palearctic.) *Tichodrominae*
- aa. Outer toe (without claw), not reaching beyond middle of subterminal phalanx of middle toe, the inner toe not reaching to second (middle) joint of middle toe; middle toe united to outer by all of its basal and half its subbasal phalanx; hallux with claw shorter than the digit. (Australian.) *Climacteriinae* ^a

To what extent, if any, examination of *Salpornis* and *Rhabdornis* in the present connection would necessitate modification of the above "key," and in which division, if any, they would, respectively, be placed, can of course only be determined by someone who has the opportunity of studying them.

Only the subfamily *Certhiinae* is represented in America, this, according to the views expressed above, being represented by a single genus, *Certhia*, the characters of the subfamily are given more fully under the generic heading on page 462.

The true Creepers (or Tree Creepers, as Professor Newton ^b prefers to designate the group) somewhat resemble the Nuthatches (*Sittidae*) in their habits, but only climb upward, or at least in upright position, usually ascending the trunks of trees in spirals, flying from the top of one trunk to the base of another in their quest for insect food lodged in crevices of the bark. Like the Nuthatches and the Titmice (*Paridae*), they build a soft, more or less felted, nest in cavities of trees and lay a large number (5 to 9) of eggs of a white color speckled with reddish brown; but instead of placing the nest in a hole it is, usually at least, concealed behind loosened plates or strips of bark on the side of a dead tree.

The single genus is peculiar to the temperate (chiefly the cold-temperate) portions of the northern hemisphere and contains few species—perhaps not more than three—though one of them (*Certhia*

^a In *Climacteriinae* the tail is much as in *Tichodrominae* but relatively longer, being about two-thirds as long as the wing. The bill is compressed and curved as in *Certhiinae*, but less so, especially as to curvature, and is relatively shorter. The coloration is plain (unstreaked) brown above, without red on wings, the remiges having a broad buff colored band across inner webs, as in *Certhiinae*, the outer rectrices being broadly tipped with grayish.

^b Dictionary of Birds, pp. 112, 985.

familiaris Linnæus) ranges nearly throughout the extensive area indicated, and being therefore subjected to very diverse environments has become differentiated into a considerable number of subspecific forms, of which the Nearctic Region alone possesses at least six.

Genus CETHIA Linnæus.

Cethia LINNÆUS, Syst. Nat., ed. 10, i, 1758, 118. (Type, by elimination, *C. familiaris* Linnæus.)

Certhius (emendation) OLPHE-GALLIARD, Orn. Eur. Occ., 1888, xxiii, 41.

Small Certhiidae with the tail nearly equal to or slightly longer than wing, graduated, the rectrices with rigid and acuminate tips, and with the plumage of upper parts conspicuously streaked.

Bill variable as to relative length and degree of curvature, sometimes decidedly shorter than head and nearly straight, sometimes much longer than head and strongly curved, always much compressed; gonys more or less concave, sometimes very decidedly so, occasionally (in shorter billed examples) nearly straight, shorter than distance from nostril to tip of maxilla; maxillary tomium without trace of subterminal notch. Nostril entirely exposed, overhung by a broad operculum, which anteriorly does not extend to anterior end of nasal fossa. Rictal bristles obsolete. Wing moderate, rounded; eighth, seventh, and sixth, or eighth to fifth, primaries longest, the ninth not longer than fourth, sometimes not longer than third, the tenth less than half as long as ninth. Tail nearly or quite as long as wing, sometimes slightly longer, graduated, the rectrices with rigid and acuminate tips. Tarsus decidedly longer than middle toe without claw but shorter than middle toe with claw, the acrotarsium distinctly scutellate; outer toe much longer than inner toe, the former reaching beyond middle of subterminal phalanx of middle toe, the latter scarcely reaching to second (middle) joint of middle toe; hallux intermediate in length between outer and inner toes; basal phalanx of middle toe adherent for entire length to both lateral toes; claws long and strongly curved, that of the hallux equal to or longer than the digit.

Coloration.—Above brownish, conspicuously streaked with darker and paler, the wings dusky varied with pale grayish or brownish, the inner webs of remiges (except outermost primaries) crossed by a broad band of buff or whitish; under parts plain white, pale gray, or pale brown, the posterior portions more or less tinged with tawny or rusty.

- *Nidification*.—Nest in cavities of trees or stumps (usually behind strips of loosened bark), of soft felted materials; eggs numerous (5 to 9), white, whitish speckled with reddish brown.

Range.—More northern portions of northern hemisphere; south in the Nearctic region to high mountains of Nicaragua. (Two or three species, one of them circumpolar.)

KEY TO THE AMERICAN SUBSPECIES OF *CERTHIA FAMILIARIS*.

- a. Paler; under parts decidedly white (the flanks and under tail-coverts more or less tinged with buff); rump tawny.
- b. Upper parts paler, with darker ground color decidedly brown, and color of rump more ochraceous. (Northern Europe.)

Certhia familiaris familiaris (extralimital).^a

- bb. Upper parts darker, with darker ground color more sooty, and color of rump more tawny.
- c. Larger (wing averaging more than 65 mm. in male, more than 62 in female).
- d. Browner above, with streaks more buffy, and less purely white beneath; smaller, especially the bill; adult male averaging wing 65.5, tail 63.7, exposed culmen 13.9; adult female, wing 62.9, tail 61.2, exposed culmen 12.9. (Eastern North America.)....*Certhia familiaris americana* (p. 464)
- dd. Less brownish above, with streaks purer or more grayish white, and more purely white beneath; larger, especially the bill; adult male averaging wing 66, tail 65.1, exposed culmen 16.4; adult female, wing 64.1, tail 63.6, exposed culmen 15.2. (Rocky Mountain district, from New Mexico to Cook Inlet, Alaska.).....*Certhia familiaris montana* (p. 467)
- cc. Smaller (wing averaging less than 64 in male, less than 61 in female).
- d. Less tawny above, purer white beneath; larger (adult male averaging wing 63.5, tail 60.8, exposed culmen 16.2; adult female, wing 60.4, tail 57.2, exposed culmen 14.7). (Mountains of California to eastern British Columbia.)*Certhia familiaris zelotes* (p. 468)
- dd. More tawny above, more buffy white below; smaller (adult male averaging wing 61.9, tail 61.2, exposed culmen 15.2; adult female, wing 60, tail 55.6, exposed culmen 12.9). (Pacific coast district, from northern California to southern Alaska.)...*Certhia familiaris occidentalis* (p. 470)
- aa. Darker; under parts pale brownish gray (white only on chin and throat); rump chestnut.
- b. Browner, the streaks of upper parts narrower and more brownish or buffy, on a more sooty ground color. (Mountains of southern Mexico to Guatemala).
Certhia familiaris alticola (p. 471)
- bb. Less brownish, the streaks of upper parts more purely white, broader, on a clearer blackish ground color. (Mountains of northwestern Mexico and southern Arizona.)*Certhia familiaris albescens* (p. 472)

^a [*Certhia*] *familiaris* Linnæus, Syst. Nat., ed. 10, i, 1758, 118 (based on Fauna Suecica, 213, etc.); ed. 12, i, 1766, 184.

The discrimination of the several European forms of this species has been only imperfectly done, and their synonymy is therefore involved in much uncertainty. Consequently, I shall not attempt to cite references which may or may not belong here. (See Hartert, Novit. Zool., iv, 1897, 136-139; Hellmayr, Tierreich, 18 Lief., 1903, 205-210.)

CERTHIA FAMILIARIS AMERICANA (Bonaparte).

BROWN OREKEEPER.

Adults in spring and summer.—General color above sepia or hister brown (varying in intensity) relieved by conspicuous streaks of dull grayish white, these broader and less sharply defined on the back, the prevailing color of the lower back being pale brownish gray or grayish brown; rump russet or dull tawny-ochraceous, each feather with a concealed large roundish spot of white, the basal portion being deep slate color; upper tail-coverts pale raw umber brown, sometimes tipped with paler; tail pale grayish brown (nearly hair brown), sometimes showing indistinct, or indications of, darker bars, the shafts of the rectrices pale yellowish brown or brownish yellow; lesser wing-coverts pale brownish gray; rest of wings mainly dark sepia brown or dusky, the middle coverts with terminal guttate spots of brownish buff or buffy whitish, the outer webs of greater coverts broadly tipped with whitish and broadly edged toward base with pale buffy grayish; alulae and (usually) primary coverts tipped with whitish; inner webs of tertials plain pale grayish brown; their outer webs dusky, tipped, and edged with dull whitish or pale grayish buff; middle portion of secondaries crossed (on both webs) by a broad sharply defined band of pale buff or buffy white, their outer web broadly edged near tip with pale brownish gray, the tip, narrowly, of the same color; primaries crossed, obliquely, on both webs by a broad band of pale buff or buffy white, this band disappearing on two or three outermost quills, the innermost primaries also tipped and edged on subterminal portion of outer web with pale brownish or buffy gray; a dull whitish or pale brownish gray superciliary stripe; lores and auricular region dark sepia brown, the latter streaked with dull whitish; suborbital and malar regions and underparts plain dull white, the flanks and under tail-coverts more or less tinged with buff; maxilla brownish black with paler tomia; mandible pale-colored basally, dusky terminally; iris brown; legs and feet horn brownish (in dried skins).

Adults in autumn and winter.—Similar to the spring and summer plumage and not always distinguishable, but usually more suffused with ochraceous or buffy, the pale wing-markings and the flanks and under tail-coverts more pronouncedly buff.

Young.—Essentially like adults, but streaks of upper parts broader and less sharply defined, more brownish, and underparts dull buffy whitish, with feathers of chest narrowly and faintly margined with dusky.

Adult male.—Length (skins), 120–135 (127.7); wing, 62–68 (65.5); tail, 61–66 (63.7); exposed culmen, 12–15 (13.9); tarsus, 14.5–16 (15.1); middle toe, 10.5–11.5 (11); hind claw, 8–9 (8.5).^a

^aThirteen specimens.

Adult female.—Length (skins), 117–132 (124.1); wing, 60–67 (62.9); tail 55–65 (61.2); exposed culmen, 12–15 (12.9); tarsus, 14.5–16 (15); middle toe, 10.5–11.5 (11.1); hind claw, 7–9 (7.8). ^a

Eastern North America; north to Grand Menan, Ontario, Manitoba, etc. (probably to southern Labrador and southwestern shores of Hudson Bay)^b west to eastern portion of the Great Plains; breeding southward to Massachusetts, New York (Hamilton and Oneida counties), northern Indiana (Steuben and Dekalb counties), southeastern South Dakota, and southeastern Missouri, and along higher Alleghenies to mountains of North Carolina (above 4,000 feet); in winter southward to northern Florida and central Texas (Bexar and Kendall counties).

Certhia familiaris (not of Linnæus) VIEILLOT, Ois. Am. Sept., ii, 1807, 70.—WILSON, Am. Orn., i, 1808, 122, pl. 7, fig. 1.—BONAPARTE, Journ. Ac. Nat. Sci. Phila., iv, 1824, 27; Ann. Lyc. N. Y., ii, 1826, 95.—NUTTALL, Man. Orn. U. S. and Can., i, 1832, 585.—AUDUBON, Orn. Biog., v, 1839, 158, pl. 415; Synopsis, 1839, 72; Birds Am., oct. ed., ii, 1841, 109, pl. 115.—THOMPSON, Nat. Hist. Vermont, 1853, 95.—WOODHOUSE, in Sitgreaves' Expl. Zuni and Col. R., 1853, 66, part (Indian Territory; Texas).—WILLIS, Ann. Rep. Smithsonian Inst. for 1858 (1859), 282 (Nova Scotia).—COUES, Check List, 1873, no. 42; 2d ed., 1882, no. 62; Birds N. W., 1874, 26, excl. syn. part; Birds Col. Val., 1878, excl. syn. part.—BAGG, Bull. Nutt. Orn. Club, iv, 1879, 183 (Hamilton Co., New York, breeding; descr. nest and eggs).—BREWSTER, Bull. Nutt. Orn. Club, vi, 1881, 238 (New England breeding range).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 323 part.

[*Certhia*] *familiaris* COUES, Key N. Am. Birds, 1872, 84 part.

[*Certhia*] *familiaris* COUES, Key N. Am. Birds, 2d ed., 1884, 273, part.

Certhia fusca (not of Gmelin, 1788) BARTON, Fragments Nat. Hist. Penn., 1799, 11 (Pennsylvania).

[*Certhia*] *familiaris* var. *fusca* COUES, Birds N. W., 1874, 230, in text.

Certhia familiaris fusca AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, Jan., 1899, 126.—BEYER, Proc. Louis. Soc. Nat. for 1897–99 (1900), 126 (Louisiana, in winter.)

^a Seventeen specimens.

Texas specimens (December to March) compare in average measurements with those from localities east of the Mississippi River, as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.	Hind claw.
MALES.						
Ten adult males from east of Mississippi River....	66	64	14	15.2	11.1	8.6
Three adult males from Texas	63.7	62.8	13.5	14.7	11	8.2
FEMALES.						
Ten adult females from east of Mississippi River..	63.7	61.4	13	15	11.1	7.6
Seven adult females from Texas	61.7	59.1	12.6	14.8	11	8

The Texan specimens average appreciably darker olive, and may possibly represent a more southern breeding form, perhaps migrants from Missouri, etc.

^b Northern records for this form are singularly few.

- Certhia americana* BONAPARTE, Geog. and Comp. List, 1838, 11; Consp. Av., i, 1850, 225.—REICHENBACH, Handb., i, 1853, 265, pl. 615, figs. 4102-4103.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 372, part (Pennsylvania; Illinois); Cat. N. Am. Birds, 1859, no. 275, part; Review Am. Birds, 1864, 89, part (Pennsylvania; Washington, D. C.; Liberty Co., Georgia; Illinois; Red River settlement).—HAMLIN, Proc. Bost. Soc. N. H., x, 1865, 80 (Maine; habits).—DRESSER, Ibis, 1865, 485 (Medina R., Texas).—MCLILWRAITH, Proc. Essex Inst., v, 1866, 88 (Hamilton, Ontario).—SNOW, Birds, Kansas, 1873, 6.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 8, fig. 11.
- C[erthia] americana* MAXIMILIAN, Journ. für Orn., 1858, 105 (Indiana and Missouri; descr., etc.).
- Certhia familiaris*, var. *americana* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 125, part.
- C[erthia] familiaris* . . . var. *americana* RIDGWAY, Ann. Lyc. N. Y., x, Jan., 1874, 366 (Illinois).
- C[erthia] familiaris*, var. *americana* NELSON, Bull. Essex Inst., viii, 1876, 96 (n. e. Illinois, Oct. 1 to May 10).
- Certhia familiaris americana* BREWSTER, Bull. Nutt. Orn. Club, iv, Oct., 1878, 199-209 (breeding habits); Auk, iii, 1886, 176 (mountains of w. North Carolina, breeding above 4,000 ft.; crit.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 726, part.—ALLEN, Bull. Am. Mus. N. H., i, 1886, 361 (breeding in Massachusetts).—SENNETT, Auk, iv, 1887, 244 (Roan Mt. North Carolina, breeding at 4,500 ft.).—COOKE, Bird Migr. Miss. Val., 1888, 275, part (dates, etc.; wintering from s. Wisconsin and s. Dakota southward).—RIDGWAY, Orn. Illinois, i, 1889, 86.—RALPH and BAGG, Auk, vii, 1890, 232 (Oneida Co., New York, breeding).—DWIGHT, Auk, ix, 1892, 140 (North Mt., Pennsylvania, breeding).—ATTWATER, Auk, ix, 1892, 343 (San Antonio, Texas, migr.).—MCBRIDE, Proc. Ind. Ac. Sci. for 1891 (1892), 16 (breeding in Steuben and Dekalb counties, n. e. Indiana).—GRUNDY, Trans. Wisc. Acad. Sci., etc., x, 1894, 153 (Outagamie Co., Wisconsin, breeding).—MCLILWRAITH, Birds Ontario, 1894, 398 (resident).—WAYNE, Auk, xii, 1895, 365 (Wacissa R., n. w. Florida, winter).—TYLER, Birds Indiana, 1897, 1128 (breeding in Steuben Co. and probably in Dekalb Co.).—OBERHOLSER, Auk, xvi, 1899, 185 (crit. nom.).—FAXON and HORN MANN, Birds Berkshire Co., Massachusetts, 1900, 13 (breeding in northern forests of Graylock Mt.).
- Certhia familiaris americanus* AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, xviii, 1901, 308.
- C[erthia] familiaris americana* RIDGWAY, Man. N. Am. Birds, 1887, i.—HARTERT, Novit. Zool., iv, 1897, 139 (crit.).—HELLMAYR, Tierreich, 1903, 211.
- Certhia rufa* COUES, Proc. Ac. Nat. Sci. Phila., 1875, 347 (ex *Certhia* Bartram, Travels Florida, p. 289 bis).
- [*Certhia*] *rufa* RIDGWAY, Proc. U. S. Nat. Mus., v, 1882, 113 (crit.).
- Certhia familiaris rufa* RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1882, 277 (s. e. South Dakota, resident).—NOM. N. Am. Birds, 1881, no. 55.—(?) BROWN (N. C.), Bull. Nutt. vii, 1882, 35 (Boerne, Kendall Co., Texas, Jan.).—AGERSBORG, Auk, 1888, 277 (s. e. South Dakota, resident).
- C[erthia] familiaris rufa* RIDGWAY, Bull. Ill. State Labr. N. H., no. 4, 1888 (Illinois).

CERTHIA FAMILIARIS MONTANA Ridgway.

ROCKY MOUNTAIN CREEPER.

Similar to *C. f. americana*, but upper parts less brownish, the general color darker and clearer dusky, the whitish streaks whiter, grayish rather than buffy; superciliary stripe broader, purer white; under parts more purely white, with buff tinge on flanks and under tail-coverts less distinct; size larger, the bill relatively longer.

Adult male.—Length (skins), 120–135 (128.5); wing, 63–67.5 (66); tail, 64–70 (65.1); exposed culmen, 15.5–17 (16.4); tarsus, 14.5–15.5 (15.2); middle toe, 11–11.5 (11.1); hind claw, 8–9 (8.6).^a

Adult female.—Length (skins), 120–132 (124.5); wing, 61.5–66.5 (64.1); tail, 61.5–66 (63.6); exposed culmen, 13–15.5 (14.4); tarsus, 14.5–15.5 (15.2); middle toe, 10.5–11.5 (11); hind claw, 8–9 (8.4).^b

Rocky Mountain district, breeding from New Mexico (San Miguel County, upper Pecos River and Santa Fé Mountains, etc.) and central Arizona (Mount Graham, Mogollon Mountains, San Francisco Mountains, etc.) to Cook Inlet, Alaska; during migration, southeastern California (San Bernardino Mountains, May, September), and probably into northern Chihuahua and Sonora.

Certhia familiaris (not of Linnaeus) WOODHOUSE, in Rep. Sitgreaves' Expl. Zuffi and Col. R., 1853, 66, part (New Mexico; San Francisco Mts., Arizona).—HENRY, Proc. Ac. Nat. Sci. Phila., vii, 1855, 209 (New Mexico).—COUES, Check List, 1873, no. 42, part; 2d ed., 1882, no. 62, part; Birds N. W., 1874, 26, part; Birds Col. Val., 1878, 145, part.—TRIPPE, in Coues' Birds N. W., 1874, 230 (mountains of Colorado, breeding near timber line).—NELSON, Proc. Bost. Soc. N. H., xvii, 1875, 356 (Utah).—DREW, Bull. Nutt. Orn. Club, vi, 1881, 88 (San Juan Co., Colorado, breeding).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 323, part (w. side Rocky Mts.; Mexico?).

[*Certhia*] *familiaris* COUES, Key N. Am. Birds, 1872, 84, part.

Certhia *familiaris* COUES, Key N. Am. Birds, 2d ed., 1884, 273, part.

Certhia americana (not of Bonaparte) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 372, part (New Mexico); Cat. N. Am. Birds, 1859, no. 275, part; Review Am. Birds, 1864, 89 (New Mexico).—HENRY, Proc. Ac. Nat. Sci. Phila., xi, 1859, 107 (New Mexico).—KENNERLY, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 26 (Pueblo Creek, New Mexico).—COUES, Proc. Ac. Nat. Sci. Phila., xviii, 1866, 97 (Fort Whipple, Arizona).—(?) COOPER, Am. Nat., iii, 1869, 296 (upper Missouri R.).

Certhia familiaris . . . var. *americana* RIDGWAY, Bull. Essex Inst., v, Nov., 1873, 180 (Colorado).—HENSCHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 41 (Utah), 73 (Fort Garland, Colorado, breeding), 100 (Apache, Arizona, Sept. 1), 155 (Arizona); Zool. Exp. W. 100th Merid., 1875, 177 (Fort Garland, Colorado; Apache, Arizona; Mount Graham, Arizona, Aug. 3).

Certhia familiaris, var. *americana* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 125, part.

Certhia familiaris . . . *β. americana* RIDGWAY, Orn. 40th Parallel, 1877, 418, part (valleys of Truckee and Carson rivers, Nevada, winter; Wasatch and Uinta Mts., Utah, breeding in pine belt).

^a Ten specimens.

^b Eight specimens.

Certhia familiaris, *β. americana* RIDGWAY, Field and Forest, May, 1877, 196 (Colorado).

Certhia mexicana (not of Gloger) COOPER, Am. Nat., iii, 1869, 74 (Montana).

Certhia familiaris fuscā (not *Certhia fusca* Barton) RIDGWAY, Bull. Essex Inst., vii, Jan., 1875, 32 (Wasatch Mts., Utah).

[*Certhia familiaris*] *montana* RIDGWAY, Proc. U. S. Nat. Mus., v, July 8, 1882, 114 (Apache, Arizona; Coll. U. S. Nat. Mus.).

Certhia familiaris montana RIDGWAY, Bull. Nutt. Orn. Club, vii, Oct., 1882, 257.—ALLEN and BREWSTER, Bull. Nutt. Orn. Club, viii, 1883, 154 (Colorado Springs, Colorado, Apr. 7).—MEARNS, Auk, vii, 1890, 262 (Mogollon Mts., Arizona, breeding from 6,500 ft. upward).—LOWE, Auk, xi, 1894, 270 (Wet Mts., Colorado, breeding at 10,000 ft.).—AMERICAN ORNITHOLOGISTS' UNION, Check List., 2d ed., 1895, no. 726 b.—COOKE, Bull. 37, Col. State Agric. Coll., 1897, 121 (Colorado, resident; in winter, 7,000–9,000 ft.).—MERRILL (J. C.), Auk, xv, 1898, 20 (Fort Sherman, Idaho, winter and spring).—MITCHELL, Auk, xv, 1898, 311 (San Miguel Co., New Mexico, breeding from 7,000 ft. to timber line).—OSGOOD, N. Am. Fauna, no. 21, 1901, 80 (Hope and Tyonek, Cook Inlet, Alaska).

[*Certhia*] *familiaris montana* RIDGWAY, Man. N. Am. Birds, 1887, 558, footnote.—HARTERT, Novit. Zool., iv, 1897, 139 (crit.).—HELLMAYR, Tierreich, 18. Lief., 1903, 211.

[*Certhia*] *f[amiliaris] montana* OSGOOD, Auk, xviii, 1901, 183 (diagnosis; range).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 451.

Certhia montana REICHENOW and SCHALOW, Journ. für Orn., 1884, 419 (reprint of orig. descr.).

CERTHIA FAMILIARIS ZELOTES Osgood.

CALIFORNIA CREEPER.

Similar to *C. f. montana*, but decidedly darker and browner above, with tawny of rump deeper and whitish streaks narrower, especially on pileum; superciliary stripe narrower, less purely white; *under parts duller white; averaging decidedly smaller, except bill and feet.

Adult male.—Length (skins), 120–131 (128.8); wing, 62–67 (63.5); tail, 58–64.5 (60.8); exposed culmen, 15–17 (16.2); tarsus, 14.5–15.5 (15.1); middle toe, 11–12 (11.3); hind claw, 7.5–9 (8.1).^a

Adult female.—Length (skins), 115–130 (122.1); wing, 58.5–63 (60.4); tail, 52.5–60 (57.2); exposed culmen, 14–17 (14.7); tarsus, 14.5–15.5 (14.9); middle toe, 10–11.5 (11); hind claw, 7–8 (7.6).^b

California, except northern coast district, through central Oregon (Portland, Fort Klamath, etc.) and Washington to central British Columbia (Nelson, Mount Lehman, Ducks, etc.), breeding southward to Mount Whitney, Tejon Mountains, and mountains of Los Angeles County; northward along or near coast to Marin County, California.

Certhia familiaris (not of Linnaeus) WOODHOUSE, in Rep. Sitgreaves' Expl. Zool. and Col. R., 1853, 66, part (California).—NELSON, Proc. Boet. Soc., N. H., xvii, 1875, 343 (California).

[*Certhia*] *familiaris* COUES, Key N. Amer. Birds, 1872, 84, part.

^a Ten specimens.

^b Eight specimens.

- C[erthia] familiaris* HENSHAW, Orn. Rep. Wheeler's Surv., 1879, 287 (e. slope Sierra Nevada).—COUES, Key N. Am. Birds, 2d ed., 1884, 273, part.
- Certhia americana* (not of Bonaparte) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 372, part (Sacramento Valley and Fort Tejon, California); Cat. N. Am. Birds, 1859, no. 275, part; Review Am. Birds, 1864, 89, part (Fort Tejon and Fort Crook, California).—NEWBERRY, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 79 (California; Des Chutes R., etc., Oregon).—HEERMANN, Rep. Pacific R. R. Surv., x, pt. vi, 1859, 40 (California).—XANTUS, Proc. Ac. Nat. Sci. Phila., xi, 1859, 191 (Fort Tejon).—BELDING, Proc. U. S. Nat. Mus., i, 1879, 391 (Calaveras Co., California).
- Certhia familiaris* . . . *β. americana* RIDGWAY, Orn. 40th Parallel, 1877, 418, part (Sierra Nevada).
- Certhia familiaris*, *β. americana* RIDGWAY and BELDING, Proc. U. S. Nat. Mus., i, 1879, 401 (Calaveras Co., California, breeding; Soda Springs, autumn; Marysville, Jan., Feb.; Stockton, Oct. 27).
- Certhia familiaris*, var. *americana* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 125, part.
- Certhia familiaris* . . . var. *americana* HENSHAW, Orn. Rep. Wheeler's Surv., 1876, 231 (Tejon Mts., California, Aug.).
- Certhia mexicana* (not of Gloger) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 373, in text (Fort Tejon, California; crit.); Cat. N. Am. Birds, 1859, no. 276.—FELNER, Ann. Rep. Smithsonian. Inst. for 1864 (1865), 425 (Fort Crook, n. California; habits).—COOPER, Orn. Cal., 1870, 58, part (south to Santa Cruz in winter, to San Francisco in summer).
- Certhia familiaris mexicana* RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 169, part; Nom. N. Am. Birds, 1881, no. 55a, part.
- [*Certhia familiaris*.] Subsp. *α. Certhia mexicana* GADOW, Cat. Birds Brit. Mus., viii, 1883, 326, part (Upper Klamath Lake, Oregon).
- Certhia familiaris fusca* (not *Certhia fusca* Barton) RIDGWAY, Bull. Essex Inst., vi, Oct., 1874, 172 (w. slope Sierra Nevada, July).
- Certhia familiaris occidentalis* (not of Ridgway, 1882) RIDGWAY, Bull. Nutt. Orn. Club, vii, Oct., 1882, 257, part.—MERRILL, Auk, v, 1888, 362 (Fort Klamath, Oregon, breeding; habits).—BREWSTER, Auk, v, 1888, 362 (Fort Klamath; crit.).—FANNIN, Check List. Birds Brit. Columbia, 1891, 43, part (e. side of Cascades).—FISHER (A. K.), North Am. Fauna, no. 7, 1893, 136 (high s. Sierra Nevada).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 2d ed., 1895, no. 726c, part.—GRINNELL (J.), Pub. 2, Pasadena Acad. Sci., 1898, 49 (Los Angeles Co., California, resident in carnivorous belt).—CHAPMAN, Bull. Am. Mus. N. H., iii, 1900, 153, part (Ducks, int. Brit. Columbia).
- C[erthia] familiaris occidentalis* RIDGWAY, Man. N. Am. Birds, 1887, 558, footnote, part.
- Certhia f[amiliaris] occidentalis* BARLOW, Condor, ii, 1900, 59 (Eldorado Co., California, breeding; descr. nest and eggs).
- Certhia familiaris zelotes* OSGOOD, Auk, xviii, Apr., 1901, 182 (Battle Creek, Tehama Co., California; coll. U. S. Nat. Mus.).—BARLOW, Condor, iii, 1901, 182 (Sierra Nevada, breeding from 3,700 ft. upward).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xviii, 1901, 308 (check list no. 726d).—GRINNELL (J.), Pacific Coast Avifauna, no. 3, 1902, 70.
- C[erthia] f[amiliaris] zelotes* BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 452.
- C[erthia] familiaris zelotes* HELLMAYR, Tierreich, 18. Lief., 1903, 212.

CERTHIA FAMILIARIS OCCIDENTALIS Ridgway.

TAWNY CREEPER.

Similar to *C. f. zelotes*, but browner and more suffused with tawny above; wing-markings more pronouncedly buff; under parts more buffy (about as in *C. f. americana*).

Adult male.—Length (skins), 116–138 (128.3); ^a wing, 60–64 (61.9); ^b tail, 55–67 (61.2); ^c exposed culmen, 14–16 (15.2); ^b tarsus, 14.5–16 (15.5); ^a middle toe, 11–12.5 (11.9); ^b hind claw, 8–9.5 (8.8). ^b

Adult female.—Length (skins), 110–130 (120.5); ^c wing, 58–62 (60); ^c tail, 53–59 (55.6); ^a exposed culmen, 12.5–13.5 (12.9); ^c tarsus, 15–15.5 (15.3); ^c middle toe, 11.5–12.5 (11.9); ^c hind claw, 8–8.5 (8.2). ^c

Humid coast slope, from northern California (Marin County, March; Humboldt Bay, etc.) to southern Alaska (Sitka, Point Gustavus, etc.).

Certhia familiaris (not of Linnæus) ORNITHOLOGICAL COMMITTEE, Journ. Ac. Nat. Sci. Phila., vii, 1837, 193 (Columbia R.).—TOWNSEND, Journ. Ac. Nat. Sci. Phila., vii, 1839, 155 (Columbia R.).—COUES, Check List, 1873, no. 42, part; 2d ed., 1882, no. 62, part; Birds N. W., 1874, 26, part; Birds Col. Val., 1873, 145, part.—GADOW, Cat. Birds Brit. Mus., viii, 1883, 323, part (Vancouver I.; British Columbia?).

[*Certhia*] *familiaris* COUES, Key N. Am. Birds, 1872, 84, part.

[*Certhia*] *familiaris* COUES, Key N. Am. Birds, 2d ed., 1884, 273, part.

Certhia americana (not of Bonaparte) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 372, part (Fort Steilacoom, Washington); Cat. N. Am. Birds, 1859, no. 275, part; Review Am. Birds, 1864, 89, part (Simiahmoo and Fort Steilacoom, Washington).—SCLATER, Proc. Zool. Soc. Lond., 1859, 235 (Vancouver I.).—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 192 (Fort Steilacoom, Washington; Oregon).—BROWN, Ibis, 1868, 42 (Vancouver I.).

Certhia familiaris, var. *americana*, BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 125, part.

Certhia familiaris mexicana (not *Certhia mexicana* Gloger) RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 169, part; Nom. N. Am. Birds, 1881, no. 55a, part.

[*Certhia familiaris*] *occidentalis* RIDGWAY, Proc. U. S. Nat. Mus., v, July 8, 1882, 115 (Simiahmoo, Washington; coll. U. S. Nat. Mus.).

Certhia familiaris occidentalis RIDGWAY, Bull. Nutt. Orn. Club, vii, Oct., 1882, 257, part.—FANNIN, Check List Birds Brit. Col., 1891, 43, part (w. side Cascades, incl. Vancouver I.).—LAWRENCE (R. H.), Auk, ix, 1892, 47 (Grays Harbor and East Hump Tulipe, Washington; resident?).—PALMER (T. S.), Auk, ix, 1892, 310 (Aberdeen, Washington, Aug.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 2d ed., 1895, no. 726c, part.—GRINNELL (J.), Auk, xv, 1898, 130 (Sitka, Alaska, breeding); Pacific Coast Avifauna, no. 3, 1902, 70.—CHAPMAN, Bull. Am. Mus. N. H., iii, 1900, 153, part (coast British Columbia).—OSGOOD, North Am. Fauna, no. 21, 1901, 50 (Queen Charlotte Islands).—RATHBUN (S. F.), Auk, xix, 1902, 139 (Seattle, Washington, resident).

^a Three specimens.

^c Four specimens.

^e Six specimens.

^b Eight specimens.

^d Seven specimens.

C[erthia] familiaris occidentalis RIDGWAY, Man. N. Am. Birds, 1887, 558, footnote, part.—HARTERT, Novit. Zool., iv, 1897, 139 (crit.).—HELLMAYR, Tierreich, 18 Lief., 1903, 211.

C[erthia] f[amiliaris] occidentalis OSGOOD, Auk, xviii, 1901, 183 (diagnosis; range).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 452.

Certhia occidentalis REICHENOW and SCHALOW, Journ. für Orn., 1884, 419 (reprint of orig. descr.).

CERTHIA FAMILIARIS ALTICOLA Miller.

MEXICAN CREEPER.

Most like *C. f. zelotes*, among forms described above, but much darker and decidedly larger; white streaks of pileum, etc., narrower and more sharply defined; rump chestnut rather than tawny; under parts white only on chin and throat, the rest of under surface pale brownish gray, changing to buff on under tail-coverts, the flanks tinged with buff or rusty, sometimes with chestnut.

Adult male.—Length (skins), 127–130 (129);^a wing, 64.5–67 (66.1); tail, 57.5–64 (61.9);^a exposed culmen, 13.5–15 (14.9);^b tarsus, 15–16 (15.3);^b middle toe, 11–12.5 (11.9);^b hind claw, 8–9.5 (8.6).^b

Adult female.—Length (skin), 122;^c wing, 57–69.5 (62);^d tail, 58;^c exposed culmen, 13–15 (13.9);^d tarsus, 15–15.5 (15.2);^e middle toe, 11–12.5 (11.6);^d hind claw, 8–9 (8.5).^d

Mountains of south-central Mexico, in States of Hidalgo (Tulacingo; El Chico), Vera Cruz (Las Vegas; Jalapa; near Cordova), Puebla (Mount Orizaba), Mexico (Mount Popocatepetl), Michoacan (Nahuatzin), southeastern Jalisco (Sierra Madre; Zapotitlan), Oaxaca (Cinco Señores; Cerro San Felipe), and Chiapas (San Cristobal), and high mountains of Guatemala (Hacienda Chancol; Volcan de Fuego, 10,000 to 12,000 feet; Puebla Vieja; Totonicapam; near Chilasco); northern Nicaragua (Matagalpa) ?^f

^a Five specimens.

^b Seven specimens.

^c One specimen.

^d Four specimens.

^e Three specimens.

Two adult males from Guatemala and Chiapas compare in average measurements with five from southern Mexico (States of Oaxaca, Vera Cruz, Puebla, and Hidalgo), as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.	Hind claw.
Five adult males from southern Mexico	66.1	62.7	14.9	15.3	11.8	8.4
Two adult males from Chiapas and Guatemala ...	66.2	60.7	15	15.5	12	9.2

I am not able to appreciate any color differences.

^f See Salvin and Godman, Ibis, 1892, 325.

- C[erthia] mexicana* (not of Gmelin) GLOGER, Handb. Naturg. Vög. Eur., 1834, 381, footnote (ex Lichtenstein, manuscript).^a—REICHENBACH, Handb. Spec. Orn., i, 1853, 266, pl. 562, figs. 3841, 3842.—SCLATER, Proc. Zool. Soc. Lond., 1856, 290 (Rancho de Suapam, near Cordova, Vera Cruz); 1858, 297 (La Parada, Oaxaca); 1859, 362 (Jalapa, Vera Cruz), 372 (Cinco Señores, Oaxaca); Cat. Am. Birds, 1862, 15 (Jalapa).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 373, in text, part (Mexico); ed. 1860 (Birds N. Am.), atlas, pl. 83, fig. 2 (Mexico); Review Am. Birds, 1864, 90 (Mexico).—SALVIN, Ibis, 1866, 190 (Volcan de Fuego, Totonicapam, and ridge above San Gerónimo, Guatemala).—SUMICHRAST, Mem. Bost. Soc., N. H., i, 1869, 544 (alpine region of Moyoapam, Popocatepetl, and Orizaba).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1879, 61 (Volcan de Fuego, 10,200–12,000 ft.; near Totonicapam, 10,000 ft.; Puebla Viejo, Vera Paz, 4,000 ft.; pine forests near Chilasco, 6,000 ft., etc.).
- [*Certhia*] *mexicana* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 5.—RIDGWAY, Proc. U. S. Nat. Mus., v, 1882, 116 (crit.).
- Certhia familiaris*, var. *mexicana* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 128 (Mexico; Guatemala).
- [*Certhia familiaris*] var. *mexicana* COUES, Birds Col. Val., 1878, 147, part (synonymy).
- [*Certhia familiaris*] Subsp. *α. Certhia mexicana* GADOW, Cat. Birds Brit. Mus., viii, 1883, 326, part, excl. syn. part (Mexico).
- Certhia familiaris mexicana* (not of Ridgway, 1880) GOODE, Bull. U. S. Nat. Mus., no. 20, 1883, 312.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 726a, part.
- C[erthia] familiaris mexicana* RIDGWAY, Man. N. Am. Birds, 1887, 558, part.
- C[erthia] f[amiliaris] mexicana* COUES, Key N. Am. Birds, 2d ed., 1884, 273, part.
- Certhia familiaris alticola* MILLER, Auk, xii, Apr., 1895, 186, part (to replace *C. mexicana* Gloger, preoccupied).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 2d ed., 1895, no. 726a, part.—COX, Auk, xii, 1895, 358, Mount Orizaba, Vera Cruz, 11,000 ft.).—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 553, part.—OBERHOLSER, Auk, xiii, 1896, 316 (description; synonymy; crit.).—CHAPMAN, Bull. Am. Mus. N. H., x, 1898, 39 (Las Vigas, Vera Cruz, 8,000 ft.).
- C[erthia] familiaris alticola* HARTEET, Novit. Zool., iv, 1897, 139 (crit.).—HELLMAYR, Tierreich, 18 Lief., 1903, 212.

CERTHIA FAMILIARIS ALBESCENS (Berlepsch).

SIERRA MADRE CREEPER.

Similar to *C. f. alticola*, but general color of upper parts clearer, or less brownish, sooty, with streaks broader and more decidedly white; under parts paler brownish gray; feet smaller.

Adult male.—Length (skins), 117–128 (121.5); wing, 61–66 (63.6); tail, 57–64 (59.7); exposed culmen, 13.5–15 (14.2); tarsus, 14–15.5 (14.7); middle toe, 10–11.5 (10.8); hind claw, 7–8 (7.4).^b

Adult female.—Length (skins), 113–128 (120.8); wing, 58–65 (61.7); tail, 55–62.5 (59.4); exposed culmen, 11–14.5 (13.3); tarsus, 14–15 (14.6); middle toe, 10–11 (10.6); hind claw, 7–8 (7.4).^b

^a Type in coll. Berlin Museum.

^b Ten specimens.

Mountains of northwestern Mexico, in Territory of Tepic (Santa Teresa), and States of Jalisco (Guadalajara), Zacatecas (Sierra Madre), Durango (Ciudad Durango; El Salto), Chihuahua (Bravo; Pinos Altos; Mina Abundancia; Napolera; Chuchuchupa) and Sonora (32 miles south of Nogales), and southern Arizona (Santa Catalina, Santa Rita, Huachuca, and Chiricahua mountains, etc.).

Certhia familiaris mexicana (not *Certhia mexicana* Gloger) BREWSTER, Bull. Nutt. Orn. Club, vii, Apr., 1882, 81 (Chiricahua Mts., s. Arizona); Auk, ii, 1885, 197 (Santa Rita Mts., s. Arizona).—SCOTT, Auk, ii, 1885, 350 (Santa Catalina Mts., s. Arizona); v, 1888, 165 (Santa Catalina Mts.).—ALLEN, Auk, ii, 1885, 350, footnote (crit.); Bull. Am. Mus. N. H., v, 1893, 41 (Chuchuchupa and Napolera, n. w. Chihuahua, Dec., Jan.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 726a, part.—JOUY, Proc. U. S. Nat. Mus., xvi, 1893, 776 (32 m. s. of Nogales, Sonora, June 19).

C[erthia] f[amiliaris] mexicana COUES, Key N. Am. Birds, 2d ed., 1884, 273, part. *C[erthia] familiaris mexicana* RIDGWAY, Man. N. Am. Birds, 1887, 558, part.

Certhia mexicana albescens BERLEPSCH, Auk, v, Oct., 1888, 450 (Durango, Durango; coll. Count von Berlepsch).

Certhia familiaris albescens OBERHOLSER, Auk, xiii, Oct., 1896, 315 (description; synonymy; crit.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xiv, 1897, 132 (Check List no. 726a).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 451.

C[erthia] familiaris albescens HARTERT, Novit. Zool., iv, 1897, 139 (crit.).—HELLMAYR, Tierreich, 18 Lief., 1903, 212.

Certhia familiaris alticola MILLER, Auk, xii, Apr., 1895, 186, part.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 2d ed., 1895, no. 726c, part (Arizona).—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 558, part (Arizona).

Family TROGLODYTIDÆ.

THE WRENS.

Very small to medium sized, slender-billed, "ten-primaried," acutiplantar Oscines with the hallux (without claw) as long as longest lateral (outer)^a toe, the basal phalanx of middle toe united for most of its length to outer toe and for at least half its length to inner toe, the acrotarsium distinctly scutellate, and the wing much rounded, with eighth to fourth (usually seventh, sixth, and fifth) primaries longest, the ninth never longer than third (often shorter than first, sometimes shorter than secondaries), the tenth well developed, at least half as long as ninth.

Bill elongated and compressed, usually slender and more or less decurved terminally, sometimes slenderly straight-subulate, of variable relative length, but exposed culmen never much longer than tarsus^b (usually much less), rarely^c almost wedge-shaped, with the

^a Except in genera *Telmatodytes* and *Cistothorus*, in which the inner toe is slightly longer than the outer.

^b Longer than tarsus only in *Catherpes*.

^c In one genus (*Leucolepis*) only.

mesorhinium elevated and arched; maxillary tomium with or (usually) without subterminal notch. Nostril variable; usually longitudinal, in lower or lower anterior portion of nasal fossa and overhung by an operculum; sometimes roundish or broadly oval, in anterior end of nasal fossa and nonoperculate; occasionally surrounded by membrane and very rarely^a very small, circular, and rimmed, in center of nasal fossa. Rictal bristles usually obsolete, but frequently obvious, with one or two fairly well developed; latero-frontal feathers erect-declinate (never antrorse), without bristly tip. Wing rather short to very short, usually much concave beneath, much rounded; tenth (outermost) primary well developed, at least half as long as ninth, always broad; ninth never longer than third, often shorter than first, sometimes much shorter than secondaries; seventh to fourth (usually seventh, sixth, and fifth) longest. Tail extremely variable as to relative length, sometimes shorter than tarsus, sometimes slightly longer than wing, usually from about half to two-thirds as long as wing; always more or less rounded, sometimes graduated for more than one-third its length; rectrices soft and rounded at tip.^b Tarsus long (usually longer than exposed culmen, never very much shorter), the acrotarsium always scutellate, the planta tarsi sometimes also more or less divided into segments, and the heel joint more or less distinctly scutellate behind; middle toe, with claw, always shorter than tarsus (sometimes very nearly as long); lateral toes usually of equal or very nearly equal length (when different the outer longer than the inner). rarely conspicuously unequal, both usually reaching (without claws) to somewhat beyond middle (penultimate) joint of middle toe^c but never beyond middle of subterminal phalanx of the latter; basal phalanx of middle toe united for most (sometimes practically the whole) of its length to outer toe and for at least half its length to inner toe.^e

Coloration.—Brown or rufescent hues predominating, usually varied by bars of dusky, sometimes streaked, speckled, or squamated; under parts white, gray, buffy, tawny, rufous, or sooty, or with two or more of these colors combined, rarely immaculate, usually more or less barred or streaked; the plumage never with red, yellow, green, nor blue, or other pure colors. Sexes alike, and young usually not materially, if at all, different in coloration from adults.

^a In the genus *Leucolepis* only.

^b Except, possibly, in *Hylorchilus*, of which I have not been able to examine a specimen with perfect tail, one lacking the rectrices altogether, while the other has but few of them and these much worn, those which remain being apparently acuminate, with the rather stiff but slender shaft slightly projecting.

^c Except in genera *Telmatodytes* and *Cistothorus*.

^d In one genus, *Salpinctes*, the inner toe (without claw) falls short of this joint, while in two others, *Catherpes* and *Hylorchilus*, it reaches to but not beyond the joint.

^e In two genera, *Telmatodytes* and *Cistothorus*, the inner toe is united externally at base to the hallux.

Osteological characters.^a—Anteorbital region narrow; descending process of nasal slender, the angle formed by this process and the *pars plana* rather open; maxillo-palatines acuminate posteriorly; costal process of sternum small, acuminate; coracoid with a small flange on the epicoracoidal portion; pelvis narrow anteriorly, with the ilia much inclined from the horizontal.

Nidification.—Variable, but nest usually in cavities of trees or rocks, or about buildings, sometimes in trees, bushes, or among reeds or rushes, and more or less domed. Eggs usually numerous (6–11), variable as to color, usually (?) white or pinkish, speckled with reddish brown, or immaculate white; sometime nearly uniform brown or plain greenish blue.

Range.—Palæarctic, Nearctic, and Neotropical regions, but absent from the Galapagos archipelago and Greater Antilles (including Bahamas); most numerous represented in the Neotropical Region.

The relationships of this group are somewhat doubtful, but appear to be with the Mimidæ on the one hand and Certhiidæ on the other. Dr. Sharpe, in volume vi of the Catalogue of the Birds in the British Museum, page 180 (1881), ranks it as a subfamily (Troglodytinæ) of his so-called family Timeliidæ, and makes it include the genus *Cinclus*. But Dr. Sharpe's "Timeliidæ" are generally acknowledged to be a most artificial and heterogeneous assemblage, whatever may be the character of the true Timeliidæ if properly restricted. Among American and Palæarctic forms the Troglodytidæ appear to be most nearly related, as stated above, to the Mimidæ and Certhiidæ, between which they are intermediate in certain characters at least, but from both of which they are, as a group, undoubtedly distinct. They are also not very far removed from the Cinclidæ. Superficially, at least, the Troglodytidæ most resemble the Mimidæ; but members of the two groups may always be readily distinguished from one another by the very different degree of cohesion between the anterior toes, however much alike they may be in other characters. In the structure of the foot, at least so far as regards the degree of cohesion between the anterior toes, the Mimidæ agree with the Turdidæ, while the Troglodytidæ are in respect to that character more like the Certhiidæ and Paridæ. Professor Baird, in his Review of American Birds (p. 92), has stated the case very clearly as follows: In the Mimidæ^b "the basal joint of the outer lateral toe is united to the middle toe, sometimes only a part of it; and the inner toe is cleft almost to its very base, so as to be opposable to the hind toe, separate from the others. In the Troglodytidæ, on the contrary, the inner toe is united by half its basal joint to the middle toe, sometimes by the whole of this joint; and the

^a From Notes on the Osteology of the Thrushes, Miminæ, and Wrens, by Frederic A. Lucas, in Proc. U. S. Nat. Mus., xi, 1888, 173–180, pl. 37.

^b Professor Baird includes the Mimidæ with the Turdidæ.

second joint of the outer toe enters wholly or partially into this union, instead of the basal joint only."

Notwithstanding the very great range of variation in details of external structure (which, however, affect chiefly the character of the nasal aperture, relative length of wing and tail and of lateral toes), the group is a very natural one and does not contain a single genus whose position in the group is in the least degree questionable. Much has been made of the alleged abnormal character of the planta tarsi in the genera *Salpinctes*, *Catherpes*, and "*Campylorhynchus*" (*Heleodytes*), in which the postero-lateral plates of the tarsal covering (composing the planta tarsi), especially the outer one, are alleged to be "broken up into a series of conspicuous scutella,"^a these plates in "normal" Troglodytidae being continuous or undivided. After most careful examination of this character, however, I find that the alleged distinction between the above-named genera and other members of the group does not, as a matter of fact, exist, the division of the outer (sometimes also the inner) plate of the planta tarsi appearing occasionally in many other genera besides those named, while in the latter it is of decidedly exceptional occurrence except in *Salpinctes*, in which the division is sometimes reduced to less than the lower half of the plates in question. *Salpinctes* and *Catherpes*, together with *Hylorchilus*, are, without doubt, "aberrant" members of the group in the extreme abbreviation of the lateral toes, especially the inner, but *Telmatodytes* and *Cistothorus* are equally if not more so in the cohesion of the hallux to the inner toe and in having the inner toe longer than the outer (instead of the reverse); but *Heleodytes* is so clearly a typical Wren that it may be considered one of the most generalized members of the family and therefore offering more difficulties in the way of diagnosis than almost any other.

The Wrens are birds of variable appearance and habits, though mostly agreeing in a dull brownish, more or less barred, coloration and semiterrestrial habits. Many are fine songsters, members of the genera *Heleodytes*, *Thryophilus*, *Thryothorus*, *Microcerculus*, and *Leucolepis*, being, in fact, songsters of the first order.

The family is poorly represented in the Eastern Hemisphere, where only fifteen species, referable to five genera, are known, these restricted to Europe and the temperate parts of Asia, chiefly the latter. In America, however, it is numerously developed, especially within the Tropics, nearly one hundred and fifty species, belonging to fourteen genera, being known to occur there.

KEY TO THE GENERA OF TROGLODYTIDÆ.

- a. Tail at least half as long as wing, much longer than tarsus.
- b. Lateral toes longer, the inner reaching (without claw) to or beyond penultimate joint of middle toe, the outer reaching decidedly beyond.

^aSee Coues, Bull. Nutt. Orn. Club, i, 1876, 50, 51.

- c. Bill stouter, its depth at frontal antæ equal to nearly half the distance from nostril to tip of maxilla, the exposed culmen not more than one-fifth as long as wing; outer plate of planta tarsi very much wider than outer side of acrotarsium; end of inner toe (without claw) reaching nearly to middle of subterminal phalanx of middle toe. *Cinnyoerthia* (extralimital) ^a
- cc. Bill more slender, its depth at frontal antæ decidedly less than distance from nostril to tip of maxilla, the exposed culmen more than one-fifth (usually more than one-fourth) as long as wing; outer plate of planta tarsi little, if any, wider than outer side of acrotarsium; end of inner toe (without claw) falling far short of middle of subterminal phalanx of middle toe.
- d. Maxillary tomium without trace of subterminal notch, or else nostril distinctly operculate; ^b nostril distinctly operculate, or else (in some species of *Heleodytes*) the bill without trace of notch and tail nearly as long as wing.
- e. Wing nearly, sometimes more than, three times as long as tarsus; back conspicuously streaked, banded, or otherwise variegated (at least beneath surface of plumage), or else head, neck, and under parts plain white. ^c
- f. Smaller (wing not more than 57, tail not more than 50.5, usually much less), with bill and feet much weaker; inner toe more closely coherent to base of hallux than to base of middle toe. ^d
- g. Exposed culmen much shorter than middle toe (without claw); bill stouter, less decurved, its depth at latero-frontal antæ equal to nearly half (sometimes more than half) the distance from nostril to tip of maxilla; tail graduated for more than one-third its length, the rectrices narrower, especially at tip; pileum streaked. ^e
Cistothorus (p. 480)
- gg. Exposed culmen equal to or longer than middle toe (without claw); bill more slender and decurved, its depth at latero-frontal antæ less than one-third the distance from nostril to tip of maxilla; tail graduated for much less than one-third its length, the rectrices broader, especially at end; pileum not streaked.
Telmatoodytes (p. 486)
- ff. Larger (wing not less than 60, tail not less, usually much more, than 50), with bill and feet much stouter; inner toe more closely coherent at base to middle toe than to hallux *Heleodytes* (p. 500)

^a *Cinnycerthia* Lesson, L'Echo du Monde Savant, année xi, 1844, col. 182 (type, *C. unicolor* Lesson = *Limnornis unirufa* Lafresnaye); *Cinnycerthia* (emendation) Sclater, Proc. Zool. Soc. Lond., 1855, 143.—*Presbys* Cabanis, Mus. Hein., i, 1850, 80 (type, *Limnornis canifrons* Lafresnaye). (Mountains of Colombia, Ecuador, and Peru; three or four species.)

^b The only exception I have been able to find in this group to complete absence of subterminal notch to the maxillary tomium is in some species of *Pheugopedius*, in which it is sometimes more or less indicated, but never distinct as in all the forms of the opposed group (*dd*), from which the very different nostrils constitute an easily recognized character.

^c Some of the extralimital species of *Heleodytes* do not conform to these color characters, but they agree respecting relative length of wing and tarsus.

^d In this character the genera *Cistothorus* and *Telmatoodytes* differ from all other Troglodytidae, which have the outer toe more closely coherent at the base to the middle toe than to the hallux.

^e Except in young and in adults of some South American species.

- ee. Wing not more than two and a half times as long as tarsus; back unicolorous; head and neck never white.
- f. Maxillary tomium without trace of notch,^a or else nostril distinctly operculate; nostril distinctly operculate.
- g. Tail graduated for nearly one-third its length, or more; ninth primary much shorter than secondaries, the eighth not longer than third (usually not longer than second); nostril much narrower than the broad, more convex, more membranous, and more decumbent operculum; bill and feet stouter; rump without concealed white spots *Pheugopedius* (p. 527)
- gg. Tail graduated for much less than one-third its length (usually for less than one-fourth); ninth primary not conspicuously shorter than secondaries, or else exposed culmen longer than middle toe (with claw); eighth primary equal to or longer than fifth; nostril broader, nearly as wide as (sometimes wider than) the narrower, straighter (sometimes more or less arched), more corneous and excurrent, operculum; bill and feet weaker; rump with concealed white spots, or else ninth primary shorter than secondaries and tail shorter than combined length of tarsus and middle toe (with claw).
- h. Rectrices 12; tail not less than two-thirds as long as wing; hallux much shorter than middle toe (without claw).
- i. Tail decidedly longer than combined length of tarsus and middle toe (with claw), much more than two-thirds (usually more than three-fourths) as long as wing, or else ^b bill stout-subulate, the culmen decidedly decurved terminally, the ninth primary shorter than secondaries, middle toe (without claw) not more than two-thirds as long as tarsus, and rump without concealed white spots.
- j. Hallux (without claw) decidedly longer than outer toe (without claw) *Thryothorus* (p. 539)
- jj. Hallux (without claw) not longer than outer toe (without claw).
- k. Nostril narrower (not wider than its operculum), linear; bill lower at base and less tapering, its depth at latero-frontal antiae not greater than its width at same point and equal to very little more (usually much less) than one-third the distance from nostril to tip of maxilla; lateral rectrices spotted terminally with pale gray or otherwise irregularly marked *Thryomanes* (p. 542)
- kk. Nostril broader (as wide as or wider than its operculum), more or less ovate, cuneate, or guttate; bill higher at base, more tapering, its depth at latero-frontal antiae equal to at least one-third the distance from nostril to tip of maxilla; lateral rectrices narrowly barred terminally.

Troglodytes (p. 562)

^a The only exception to the absence of a subterminal notch to the maxillary tomium in this group is in some species of the genus *Pheugopedius*, in which it is sometimes more or less indicated, but is never so distinct as in all the forms of the opposed group (*f*), in which the nonoperculate nostrils in combination with the notch afford an easily recognized distinctive character.

^b In *Troglodytes*, part (*T. solstitialis* and *T. ochraceus*).

- ii. Tail shorter than combined length of tarsus and middle toe (with claw), very little, if any, more than two-thirds as long as wing; bill slender-subulate, the culmen straight to near tip; ninth primary longer than secondaries; middle toe (without claw) more than two-thirds as long as tarsus; rump with concealed white spots (as in *Thryothorus*, *Thryomanes*, and most species of *Troglodytes*).....*Olbiorchilus* (p. 595)
- hh. Rectrices 10; tail less than two-thirds as long as wing; hallux nearly as long as middle toe (without claw).....*Thryorchilus* (p. 605)
- ff. Maxillary tomium with a distinct subterminal notch; nostril non-operculate, small, roundish or oval, in lower anterior portion of nasal fossa.
 - g. Tail only half as long as wing, not much longer than tarsus.
Henicorhina (p. 607)
 - gg. Tail much more than half as long as wing, at least half as long again as tarsus.
 - h. Tail less than two-thirds as long as wing; exposed culmen not longer than middle toe (without claw); wing less than 55 mm.
Nannorchilus (p. 617)
 - hh. Tail more than two-thirds as long as wing (sometimes nearly as long), or else exposed culmen longer than middle toe (without claw); wing more than 55 mm.....*Thryophilus* (p. 620)
- bb. Lateral toes very unequal in length, their ends (at base of claws) forming a very oblique line with the penultimate joint of the middle toe, the inner toe (without claw) not reaching as far as the latter.
- c. Tail at least two and a half times as long as tarsus, the latter less than one-third as long as wing; bill from rictus much less than half as long as wing; rectrices normal (firm-webbed and broadly rounded at end), not uniform in color.
 - d. Hallux weaker (not thicker than anterior toes), shorter than outer toe; inner toe not reaching to subterminal joint of middle toe, the outer toe reaching to but little beyond; under parts of body whitish (sometimes flecked or barred with dusky); tail varied with grayish brown and black, crossed near tip by a broad band of pale cinnamon preceded by another of black.....*Salpinctes* (p. 643)
 - dd. Hallux stouter, equal in length to outer toe; inner toe reaching to subterminal joint of middle toe, the outer toe reaching nearly to middle of subterminal phalanx of middle toe; under parts of body rufescent; tail cinnamon-rufous barred with black.....*Catherpes* (p. 653)
- cc. Tail not more than one and one-third times as long as tarsus, the latter nearly half as long as wing; bill from rictus more than half as long as wing; rectrices lax-webbed, subacuminate, uniform sooty....*Hylorchilus* (p. 663)
- aa. Tail less than half as long as wing, shorter than tarsus.
 - b. Mesorhinium normal; nostril in lower anterior portion of nasal fossa, without rim, broadly oval, or closed anteriorly by the very broad, convex, and decumbent membranous operculum.....*Microcerculus* (p. 665)
 - bb. Mesorhinium elevated and compressed; nostril in center of nasal fossa, small, circular, rimmed.....*Leucolepis* (p. 670)

Genus CISTOTHORUS Cabanis.

Cistothorus^a CABANIS, Mus. Hein., i, 1850, 77. (Type, *Troglodytes stellaris* Lichtenstein.)

Very small Troglodytidae (wing less than 50 mm.) resembling *Telmatodytes*, but with exposed culmen much shorter than middle toe (without claw), the bill stouter and less decurved (its depth at frontal antiae equal to nearly half the distance from nostril to tip of maxilla, or sometimes much more than half), tail graduated for more than one-third its length, and with the pileum, as well as back, streaked.^b

Bill much shorter than head, rather stout, its depth at latero-frontal antiae decidedly more than one-third the distance from nostril to tip of maxilla and about equal to its depth at same point; exposed culmen decidedly shorter than middle toe without claw, nearly straight for most of its length, or gradually, though slightly, curved from base; gonys decidedly shorter than distance from nostril to tip of maxilla, straight; maxillary tomium slightly concave, without trace of subterminal notch. Nostril longitudinal, ovate or guttate (pointed anteriorly), overhung by a distinct operculum, its posterior end in contact with feathering of nasal fossa. Rictal bristles absent. Wing short, rounded; eighth, seventh, and sixth primaries longest, or seventh, sixth, and fifth longest, the eighth scarcely shorter, or eighth to fifth longest and equal; ninth shorter than third, sometimes shorter than first, about twice as long as tenth, or a little less. Tail nearly as long as wing (seven-eighths to seventeen-eighteenths as long), graduated for one-third its length or more (for two-fifths its length in *C. stellaris* and *C. elegans*), the rectrices rather narrow and slightly tapering terminally, but with tip broadly rounded. Tarsus longer than middle toe with claw, two-fifths as long as wing, or more, the acrotarsium distinctly scutellate, the planta tarsi booted; outer toe (without claw) reaching to, but not beyond, subterminal joint of middle toe, its claw falling much short of base of middle claw; inner toe (without claw) reaching to slightly beyond subterminal joint of middle toe; hallux (without claw) slightly longer than inner toe (without claw), but much thicker, its claw shorter than the digit (sometimes nearly as long); basal phalanx of middle toe coherent to outer toe for about two-thirds its length, to inner toe for slightly less; base of inner toe united exteriorly to base of hallux.

Coloration.—Above brown, the back conspicuously streaked with black and white, the pileum also streaked,^b at least with black; wings and tail variegated with black, mostly in form of bars; under parts buffy or pale tawny, paler (usually whitish) on throat and abdomen.

Nidification (of *C. stellaris*).—Nest globular, with entrance a small hole in one side, composed of grass or sedge blades, attached to upright aquatic grasses or sedges; eggs immaculate white.

^aFrom "Cistschlüpfen."

^bExcept in young and in adults of one or two South American species.

Range.—Temperate parts of continental America, from Manitoba to Patagonia.

KEY TO THE SPECIES AND SUBSPECIES OF *CISTOTHORUS*.^a

- a. Pileum distinctly streaked.
 - b. No distinct superciliary stripe, the whole side of head being dull whitish, narrowly streaked with darker; rump immaculate, or else much less conspicuously streaked than back.
 - c. Rump streaked or spotted with black and white; wing longer, tail, bill, tarsi, and toes shorter (adult male averaging wing 45, tail 38.6, exposed culmen 10.5, tarsus 16.8, middle toe 11.2). (Eastern North America.)
Cistothorus stellaris (p. 482)
 - cc. Rump immaculate brown; wing shorter, tail, bill, tarsi, and toes longer (adult male averaging wing 42.5, tail 40.2, culmen 11, tarsus 18, middle toe, 12.5). (*Cistothorus polyglottus*.)
 - d. Darker, with whitish streaks on back narrower. (Brazil, etc.)
Cistothorus polyglottus polyglottus (extralimital)^b
 - dd. Paler, with white streaks on back broader.
 - e. More rufescent above, with white streaks on back broader; tail longer (44 in male). (Isthmus of Panama.)
Cistothorus polyglottus lucidus, adult (p. 486)
 - ee. Grayer above, with white streaks on back narrower; tail shorter (38–42 in male). (Eastern Mexico to Guatemala.)
Cistothorus polyglottus elegans, adult (p. 484)
 - b. A distinct superciliary stripe of pale brownish buff or buffy white; rump very heavily streaked or blotched with black and streaked with whitish. (Southern Brazil to Chile, Patagonia, and Falkland Islands.)

Cistothorus platensis (extralimital)^c

- aa. Pileum plain brown.
 - b. Smaller (wing not more than 43); no superciliary stripe.
 - c. Pileum and hindneck light bistre; rump and upper tail-coverts deep russet-brown; flanks and under tail-coverts deep cinnamon-buff.
Cistothorus polyglottus lucidus, young^d (p. 486)

^a Only those forms which I have been able to examine in the present connection are included.

^b *Thryothorus polyglottus* Vieillot, Nouv. Dict. d'Hist. Nat., xxxiv, 1819, 59 (Paraguay; based on *Todo voz* Azara, Apunt., ii, 29).—*Cistothorus polyglottus* Pelzeln, Orn. Bras., 1871, 48, 414; Salvin and Godman, Biol. Centr.-Am., Aves, i, 1880, 105, part (Brazil, Paraguay); Sharpe, Cat. Birds Brit. Mus., vi, 1881, 245, part.—*Troglodytes omnisonus* Naumann, Vög. Deutschl., iii, 1823, tab. to p. 724 (ex Lichtenstein, manuscript; based on *Todo voz* Azara, Apunt., ii, 29).—(?) *Turdus interscapularis* Nordmann, in Erman's Verz. Thiere. Pflanz., 1835, 13 (Brazil).—*C[istothorus] interscapularis* Cabanis, Mus. Hein., i, 1850, 78, footnote.

^c [*Sylvia*] *platensis* Latham, Index Orn., ii, 1790, 548 (based on *Roitelet de Buenos Ayres* Buffon, Hist. Nat. Ois., v, 361; Pl. Enl., pl. 730, fig. 2); *Hylemathrous platensis* Maximilian, Beitr. Naturg. Bras., iii, 1831, 742; *Thryothorus platensis* Hartlaub, Index Azara's Apunt., 10; Pelzeln, Orn. Bras., 1871, 48, 414; *Cistothorus platensis* Sclater, Proc. Zool. Soc. Lond., 1860, 384; Sharpe, Cat. Birds Brit. Mus., vi, 1881, 244.—*T[hryothorus] eidouxi* Bonaparte, Consp. Av., i, 1850, 221 (Brazil; based on Voy. Pole Sud., Ois., pl. 19, fig. 6).—*Cistothorus fasciolatus* Burmeister, Journ. für Orn., 1860, 252.

^d The young of other forms of the genus not seen by me.

cc. Pileum and hindneck broccoli brown; rump and upper tail-coverts wood brown; flanks and under tail-coverts pale wood brown.

Cistothorus polyglottus elegans, young^a (p. 485)

bb. Larger (wing more than 45); a distinct buffy superciliary stripe. (Ecuador.)

Cistothorus brunneiceps (extralimital)^b

CISTOTHORUS STELLARIS (Lichtenstein).

SHORT-BILLED MARSH WREN.

Adults in spring and summer.—Pileum streaked with black and light brown (between hair brown and raw umber), the black streaks usually much broader than the brown ones, except on forehead, which is sometimes uniform brown;^c hindneck light brown (between hair brown and raw umber), sometimes indistinctly streaked with dusky: back and scapulars black, narrowly streaked with brownish white, some of the feathers edged with light brown, sometimes with outer webs mostly of the latter color or spotted with the same; rump light buffy brown or cinnamon-brown, more or less streaked or otherwise variegated, chiefly along median line, with black and whitish; upper tail-coverts light brown, barred with black and tipped with dull whitish; tail barred with black and light grayish brown in varying relative proportion; wing-coverts pale buffy brown, barred or transversely spotted with blackish; inner webs of tertials plain dusky, their outer webs black with marginal triangular spots of brownish buff or pale buffy brown; secondaries and primaries dusky, their outer webs with broad marginal spots of pale buffy brown or brownish buff, producing broad bands on closed wing; sides of head, including superciliary region, pale brownish buff or dull brownish white, indistinctly streaked with darker; malar region, chin, throat, breast, and abdomen white (slightly dull or buffy); chest, sides, flanks, and under tail-coverts cinnamon-buff, paler on chest (where sometimes very faint), deeper on flanks and under tail-coverts; maxilla dusky, with paler tomia; mandible dull pale yellowish (light pinkish in life), more or less dusky terminally; legs and feet pale brownish (more pinkish in life).

Adults in autumn and winter.—Similar to the spring and summer plumage, but more richly colored, especially the cinnamon-buff of the under parts, which sometimes shows a few dusky subterminal bars or spots and whitish terminal spots on flanks.

^a The young of other forms of the genus not seen by me.

^b *Cistothorus brunneiceps* Salvin, Ibis, fourth ser., v, Jan., 1881, 129, pl. 3, fig. 1 (Sical, Ecuador; coll. Salvin and Godman); Sharpe, Cat. Birds Brit. Mus., vi, 1881, 247.—(?) *Cistothorus equatorialis* Lawrence, Ann. Lyc. Nat. Hist. N. Y., x, Feb., 1871, 3 (Pichincha, Ecuador; coll. Vassar College Mus.).

^c Frequently there is a large patch of uniform brown on the forehead; when the black largely predominates on the pileum the narrow pale streaks are sometimes dull brownish white.

Adult male.—Length (skins), 92–105 (99.4); wing, 43–47 (45); tail, 36–41.5 (38.6); exposed culmen, 10–11 (10.5); tarsus, 15–17.5 (16.8); middle toe, 10–12 (11.2).^a

Adult female.—Length (skins), 94–103.5 (97.5); wing, 41–45.5 (43); tail, 35–38 (36.8); exposed culmen, 9.5–10.5 (10.1); tarsus, 15.5–17 (16.4); middle toe, 10–12 (11).^b

Troglodytes stellaris NAUMANN, Vog. Deutschl., iii, 1823, tab. to p. 724 (Carolina; ex Lichtenstein, manuscript).

T[roglodytes] stellaris TRIPPE, Proc. Essex Inst., vi, 1871, 115 (Minnesota).

[*Troglodytes*] *stellaris* GRAY, Hand-list, i, 1869, 190, no. 2603.

C[istothorus] stellaris CABANIS, Mus. Hein., i, 1850, 77, footnote.—NELSON, Bull. Essex Inst., viii, 1876, 97 (n. e. Illinois, breeding).—COUES, Key N. Am. Birds, 2d ed., 1884, 280.—RIDGWAY, Man. N. Am. Birds, 1887, 556.

Cistothorus stellaris BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 365; Cat. N. Am. Birds, 1859, no. 269; Review Am. Birds, 1864, 146.—SCLATER, Cat. Am. Birds, 1862, 22, part (United States).—HAYDEN, Trans. Am. Philos. Soc., xii, 1862, 163 (Council Bluffs, Iowa; Big Sioux R.; Loup Fork of Platte R.).—ALLEN, Proc. Essex Inst., iv, 1864, 83 (Massachusetts; summer resid.); Bull. Mus. Comp. Zool., ii, 1871, 167 (e. Florida, winter); Bull. Am. Mus. N. H., i, 1886, 260 (Massachusetts).—LAWRENCE, Ann. Lyc. N. Y., viii, 1866, 283 (near New York City).—COUES, Proc. Ac. Nat. Sci. Phila., 1871, 20 (Fort Macon, North Carolina, Oct.); Check List, 1873, no. 68; 2d ed., 1882, no. 81; Birds N. W., 1874, 36; Birds Col. Val., 1878, 180.—MAYNARD, Birds Florida, 1873, 43.—SNOW, Birds Kansas, 1873, 6.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 159, pl. 9, fig. 7; iii, 1874, 504 (Utah Lake, breeding).—YARROW and HENSHAW, Rep. Orn. Spec. Wheeler's Survey, 1874, 9 (Provo, Utah, breeding).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 41 (Provo, Utah); Zool. Exp. W. 100th Merid., 1875, 185 (do.).—BREWSTER, Bull. Nutt. Orn. Club, iii, 1878, 22 (descr. young); vii, 1882, 121 (Gulf Hammock, Florida, Nov.).—MERRIAM, Bull. Nutt. Orn. Club, iv, 1879, 6 (Lewis Co., New York, Oct. 27); Auk, i, 1884, 59 (do.).—ROBERTS and BENNER, Bull. Nutt. Orn. Club, v, 1880, 13 (Grant Co., Minnesota).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 243.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 68; Orn. Illinois, i, 1889, 98.—SPELMAN, Bull. Nutt. Orn. Club, vii, 1882, 118 (Rye Beach, New Hampshire, several, Aug.).—BAILEY (H. B.), Bull. Nutt. Orn. Club, viii, 1883, 38 (St. Simons I., Georgia, breeding).—ROE, Bull. Nutt. Orn. Club, viii, 1883, 179 (Cornwall-on-Hudson, breeding).—BICKNELL, Auk, i, 1884, 139 (song; song period).—AGERSBERG, Auk, ii, 1885, 278 (s. e. South Dakota, breeding).—SETON, Auk, iii, 1886, 327 (w. Manitoba, summer resident).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 724.—COOKE, Bird Migr. Miss. Val., 1888, 274 (breeding chiefly north of 40°, to w. Manitoba, w. to s. e. Dakota; dates of migr.); Bull. Col. State Agric. Coll., no. 56, 1900, 222 (Cheyenne, Wyoming, 1 spec., Apr. 14, 1889).—MEARNS, Auk, vii, 1890, 56 (Cornwall-on-Hudson, breeding).—SCOTT, Auk, vii, 1890, 117 (Tarpon Springs, Florida, Sept. to Apr. 10; habits; remarks on plumage).—HASBROUCK, Auk, vii, 1890, 291 (District Columbia, 1 spec., May 9).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1890, 629 (Manitoba, summer resident; habits; song; descr. nest).—WOODRUFF, Auk, ix, 1892, 202 (Litchfield, Connecticut).—STONE, Auk, xi, 1892, 204 (Cape May, New Jersey, Jan. 26–29).—NEHRING, Our Native Birds, etc., i, 1893, 159.—SAUN-

^a Twenty specimens.

^b Eight specimens.

- DEES, Biol. Rev. Ont., i, 1894, 51 (near Toronto, breeding; habits, song, etc.).—ALLEN (F. H.), Auk, xii, 1895, 89 (Stockbridge, Berkshire Co., Massachusetts, summer resident).—NASH, Auk, xiii, 1896, 347 (Toronto, Aug. June).—BUTLER, Birds Indiana, 1897, 1124 (breeding in northwestern counties).—KNIGHT, Auk, xvi, 1898, 281 (near Bangor, Maine, breeding).—BEYER, Trans. Louis. Soc. Nat. for 1897-99 (1900), 42 (Louisiana, winter resident).—FAXON and HOFFMANN, Birds Berkshire Co., Mass., 1900, 13 (summer resident).—PREBLE, North Am. Fauna, no. 22, 1902, 128 (Norway House, Kewatin, June 20).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 450.
- Cistothorus stellaris* TRIPPE, Proc. Bost. Soc. N. H., xv, 1872, 236 (Decatur and Mahaska counties, Iowa, breeding).
- Thryothorus stellaris* TURNBULL, Birds E. Penna. and New Jersey, 1869, 27; Phila. ed., p. 20.
- Troglodytes brevirostris* NUTTALL, Man. Birds E. U. S. and Canada, i, 1832, 436 (e. Massachusetts; cites: "Read in Acad. Nat. Sc. Phila. Transactions of the American Academy, v, p. 98, with a figure"); a 2d ed., i, 1840, 439.—AUDUBON, Orn. Biog., ii, 1834, 427; Synopsis, 1839, 77; Birds Am., oct. ed., ii, 1841, 138, pl. 124.—BONAPARTE, Geog. and Comp. List, 1838, 11; Consp. Av., i, 1850, 222.—HOY, Proc. Ac. Nat. Sci. Phila., 1853, 312 (Wisconsin).
- Cistothorus brevirostris* SCLATER and SALVIN, Ibis, 1859, 8.

CISTOTHORUS POLYGLOTTUS ELEGANS (Sclater and Salvin).

GUATEMALAN MARSH WREN.

Similar to *C. stellaris*, but with shorter wing, longer tail, bill, tarsi, and toes, and paler, duller coloration, and with the rump immaculate brown.

Adults in spring and summer.—Pileum and hindneck light broccoli brown, or hair brown, the former with a greater or less number of narrow paler (sometimes whitish) streaks and broader blackish ones along sides of forehead and crown; back (interscapulars) dull black, broadly streaked with dull white, some of the feathers with more or less of light brown on outer webs; scapulars light brown, with more or less distinct mesial streaks of paler, and sometimes barred or spotted with dusky; rump plain light brown,^b the upper tail-coverts similar, but indistinctly barred with dusky; tail light brown (varying from cinnamon to broccoli), more or less broadly barred with black, the bars sometimes narrow and separated, oftener confluent along the median line of the rectrices, the inner webs uniform black or dusky, except terminal portion; wings pale brown, transversely spotted with black or dusky, this predominating on tertials; sides of head, including superciliary region, dull white or brownish white, finely and indistinctly streaked with grayish brown, the superciliary and auricular areas sometimes separated by an indistinct postocular streak of grayish brown; under parts dull white, passing on sides, flanks, and under tail-coverts into

^aThe correct citation is: Mem. Am. Ac. Arts and Sciences, new ser., i, 1833, 98.

^bVarying from cinnamonaceous wood brown, or almost cinnamon, in fresher plumage, to isabella color or almost broccoli brown in more worn plumage.

pale wood brown or dull brownish buff; maxilla black or dusky, with paler tomia; mandible dull whitish or pale brownish buffy (in dried skins); legs and feet pale brownish (in dried skins).

Young.^a—Pileum and hindneck plain dark hair brown or dull broccoli brown; interscapulars dusky brown, with narrow and mostly indistinct shaft-streaks of whitish; rump and upper tail-coverts plain wood brown; otherwise essentially like adults.

Adult male.—Length (skins), 98–109 (104.3); wing, 41–43.5 (42.5); tail, 38–42 (40.2); exposed culmen, 10.5–11.5 (11); tarsus, 17–19 (18); middle toe, 12–13 (12.5).^b

Adult female.—Length (skin), 105; wing, 42; tail, 39; exposed culmen, 11.5; tarsus, 18; middle toe, 13.^c

Eastern Mexico, in State of Vera Cruz (Orizaba; Jalapa), and southward through Chiapas (Palenque; Ocuilapa), highlands of Guatemala (Lake of Dueñas; summit of Volcan de Agua), and British Honduras (southern pine ridge).

Cistothorus elegans SCLATER and SALVIN, Ibis, 1st ser., i, Jan., 1859, 8 (Lake of Dueñas, Guatemala; coll. Salvin and Godman); 1860, 30 (do.).—BAIRD, Review Am. Birds, 1864, 146 (Dueñas; Orizaba, Vera Cruz).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, pl. 7, fig. 3.

[*Cistothorus*] *elegans* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 7, part.

C[istothorus] elegans BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 159.

[*Cistothorus stellaris*] *b. elegans* COUES, Birds N. W., 1874, 36 (synonymy); Birds Col. Val., 1878, 180 (do.).

^a Described from a specimen from Ocuilapa, Chiapas (no. 143068, coll. U. S. Nat. Mus.).

^b Six specimens.

^c One specimen, from Orizaba, Vera Cruz.

Specimens from Vera Cruz (Orizaba and Jalapa) compare in average measurements with those from Chiapas (Palenque and Ocuilapa) as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
Two adult males from Vera Cruz.....	43.5	41	11	18	12.6
Four adult males from Chiapas	42	39.7	11	18	12.5
One adult male from British Honduras (southern pine ridge).....	41.5	.....	10	17	12

The material examined is unfortunately scant, but such as it is seems to indicate subspecific difference between the birds from Vera Cruz, on the one hand, and those from Chiapas and Guatemala on the other. Comparing two of the former (an adult male and female) in worn breeding plumage with five of the latter in exactly similar condition, it is found that the two Vera Cruz birds have the pileum and hindneck dull blackish brown or dusky (except the central portion of the forehead and extreme lower hindneck), while those from Chiapas and Guatemala have the same parts light grayish brown. The single Vera Cruz specimen (from Jalapa, April 15) in unworn plumage, however, has the pileum and hindneck light brown, except along lateral margin; but there is no Chiapas nor Guatemalan specimen in unworn plumage with which to compare it.

Cistothorus stellaris (not *Troglodytes stellaris* Naumann) SCLATER, Cat. Am. Birds, 1862, 22, part (Dueñas).—SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 54 (near Orizaba, Vera Cruz).

Cistothorus polyglottus (not *Thryothorus polyglottus* Vieillot) SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 105, part (Orizaba; Lake of Dueñas and summit of Volcan de Agua, Guatemala).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 245, part (Dueñas).

[*Cistothorus*] *polyglottus* RIDGWAY, Man. N. Am. Birds, 1887, 556, part.

Cistothorus polyglottus CHAPMAN, Bull. Am. Mus. N. H., x, 1898, 24 (Jalapa, Vera Cruz; crit.).

CISTOTHORUS POLYGLOTTUS LUCIDUS Ridgway.

PANAMA MARSH WREN.

Similar to *C. p. elegans*, but coloration brighter and more rufescent: adults with white streaks on back broader, more purely white; young with general color much more strongly rufescent (the rump and upper tail-coverts dull russet or cinnamon instead of wood brown, the sides flanks, and under tail-coverts cinnamon, or deep buffy cinnamon, instead of pale wood brown; tail longer.

Adult male.—Length (skin), 106.5; wing, 42.5; tail, 44; exposed culmen, 11; tarsus, 17.5; middle toe, 12.5.

Isthmus of Panama (Boquete, Chiriqui; Bugaba, Veragua).

Cistothorus elegans (not of Salvin and Godman) SALVIN, Proc. Zool. Soc. Lond., 1870, 182 (Bugaba, Veragua).—(?) ZELEDON, Cat. Aves de Costa Rica, 1882, 3 [*Cistothorus*] *elegans* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 7, part (Veragua).

Cistothorus polyglottus elegans BANGS, Proc. New Engl. Zool. Club, iii, Jan., 1902, 53 (Boquete, Chiriqui, 5,000 ft. alt.).

Cistothorus polyglottus (not *Thryothorus polyglottus* Vieillot) SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 105, part (Chiriqui, Veragua).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 245, part (in synonymy).—(?) ZELEDON, Proc. U. S. Nat. Mus., viii, 1885, 105 (Costa Rica); Anal. Mus. Nac. Costa Rica, i, 1887, 106 (do).

[*Cistothorus*] *polyglottus* RIDGWAY, Man. N. Am. Birds, 1887, 557, part.

Cistothorus polyglottus lucidus RIDGWAY, Proc. Biol. Soc. Wash., xvi, Nov. 30, 1903, 169 (Boquete, Chiriqui, Panama; coll. E. A. and O. Bangs).

Genus TELMATODYTES Cabanis.

Telmatodytes^a CABANIS, Mus. Hein., i, 1850, 78. (Type, *Certhia palustris* Wilson.)

Small Troglodytidae (wing 40–50 mm.) with inner toe more united to hallux than to middle toe; exposed culmen equal to or longer than middle toe (without claw); depth of bill at frontal antiae less than one-third the distance from nostril to tip of maxilla; tail graduated for much less than one-third its length, and back streaked with black and white but pileum not streaked.

Bill shorter than head, slender, much compressed for anterior half,

^a "réluu Marschland."

its depth at latero-frontal antiæ equal to not more than one-third the distance from nostril to tip of maxilla and about equal to its width at same point; exposed culmen about equal to middle toe without claw, very much shorter than tarsus, gently curved for most of its length (straight only at base); gonys much shorter than distance from nostril to tip of maxilla, straight; maxillary tomium slightly but decidedly concave, without trace of subterminal notch. Nostril cuneate (pointed anteriorly), overhung by a rather broad operculum, its posterior end in contact with feathering of latero-frontal antiæ. Rictal bristles wanting. Wing moderate, much rounded; seventh and sixth primaries longest, the eighth and fifth very little shorter, or the eighth sometimes equal to seventh; ninth slightly shorter than first, less than twice as long as tenth. Tail nearly as long as wing (more than four-fifths as long), much rounded (but graduation less than one-fourth its length), the rectrices of uniform width throughout (or the lateral ones slightly broader terminally), their tip broadly rounded. Tarsus longer than middle toe with claw, a little more than two-fifths as long as wing, the acrotarsium distinctly scutellate, the planta tarsi booted; outer toe reaching to decidedly beyond subterminal phalanx of middle toe, its claws reaching about to base of middle claw; inner toe slightly longer than outer,^a its claw slightly smaller than that of outer toe; hallux, without claw, as long as inner toe, without claw, but much thicker, its claw much shorter than the digit; basal phalanx of middle toe coherent to outer toe for about two-thirds its length (or a little less), to the inner for about half its length; base of hallux united exteriorly to base of inner toe to beyond point where the latter is united to middle toe.^b

Coloration.—Above brown, the back streaked with black and white, wings and tail barred, more or less, with black or dusky, the pileum dusky, at least laterally; narrow superciliary stripe and under parts whitish, the latter brownish laterally, where sometimes barred with dusky.

Nidification.—Nest globular, with entrance a small hole in one side, composed externally of blades of coarse grasses, rushes, etc., attached to several upright stalks of aquatic weeds or rushes. Eggs profusely sprinkled with brown on a paler (sometimes whitish) ground, sometimes so densely that the color appears almost uniform brown.

Range.—Temperate North America. (Monotypic.)

^a The reverse of other genera except *Cistothorus*.

^b This character also is shared only by *Cistothorus*.

KEY TO THE SUBSPECIES OF TELMATODYTES.

- a. Tail-coverts usually ^a not distinctly, if at all, barred with darker.
- b. Darker and duller in color, the brown of upper parts less rufescent, the flanks, etc., pale broccoli brown, wood brown, or isabella color; smaller, except bill (adult male averaging, wing 50.6, tail 41.4, exposed culmen 14.7; adult female, wing 47.7, tail 38.7, exposed culmen 14.1). (Northeastern United States.) *Telmatodytes palustris palustris* (p. 489)
- bb. Paler and brighter in color, the brown of upper parts more rufescent, the flanks, etc., deep cinnamon-buff or cinnamon; larger, except bill (adult male averaging, wing 52.3, tail 43.6, exposed culmen 14.4; adult female, wing 49.6, tail 40.2, exposed culmen 13.8). (Great plains and prairie districts of interior United States and British Provinces; in winter, south over greater part of Mexico and along Gulf coast to western Florida, occasionally to South Carolina, etc.) *Telmatodytes palustris iliacus* (p. 492)
- aa. Tail-coverts usually distinctly barred with darker.
- b. Larger (wing averaging more than 50 in male, 49 or more in female; tail averaging more than 44 in male, more than 42 in female); coloration paler.
- c. Larger (adult male averaging, wing 54, tail 46.4, exposed culmen 14.2; adult female, wing 52, tail 49.8, exposed culmen, 13.5); coloration paler. (Rocky Mountain plateau district.) *Telmatodytes palustris plesius* (p. 494)
- cc. Smaller (adult male averaging, wing 50.7, tail 44.4, exposed culmen 13.4; adult female, wing 49, tail 42.7, exposed culmen 13); coloration darker. (Pacific coast district, California to British Columbia; Lower California and Sonora in winter.) *Telmatodytes palustris paludicola* (p. 496)
- bb. Smaller (wing averaging less than 49 in male, less than 45 in female; tail averaging less than 40 in male, less than 38 in female); coloration darker or grayer.
- c. General color above decidedly brown; interscapular region extensively black; sides and flanks deep brown; slightly larger (adult male averaging, wing more than 47, tail more than 39; adult female, wing more than 44, tail more than 36).
- d. Darker, with pileum extensively black, sometimes entirely so; brown of scapulars, etc., darker; sides and flanks (sometimes chest also) usually more or less speckled with dusky; slightly larger (adult male averaging, wing 48.2, tail 39; adult female, wing 44.7, tail 37.8). (South Atlantic States, south to western Florida in winter.)
Telmatodytes palustris marianae (p. 497)
- dd. Paler, with pileum mostly brown; brown of scapulars, etc., lighter and duller; under parts without specks; slightly smaller (adult male averaging, wing 47.4, tail 40.4; adult female, wing 44.7, tail 36.5). (Coast of Louisiana and Texas.) *Telmatodytes palustris thryophilus* (p. 498)
- cc. General color above grayish brown or olive, with the pileum mostly grayish brown or olive and the interscapular region largely (sometimes almost entirely) olive; sides and flanks light grayish brown or olive; slightly smaller (adult male averaging, wing 46.7, tail 38; adult female averaging, wing 43.5, tail 34.2). (Coast of South Carolina and Georgia and southward to Anastasia Island, Florida.) *Telmatodytes palustris griseus* (p. 499)

^a In a very great majority of specimens.

TELMATODYTES PALUSTRIS PALUSTRIS (Wilson).

LONG-BILLED MARSH WREN.

Adults in spring and early summer.^a—Pileum dull black, more or less brownish medially, usually with a broad and distinct though never sharply defined median area of olive-brown or broccoli brown on forehead and crown, occasionally continued to the hindneck, dividing the blackish into two widely separated lateral broad stripes; hindneck mostly plain brown; back (interscapular area) black, streaked with white; scapulars, rump, and upper tail-coverts plain brown (varying from nearly broccoli brown to between raw umber and mars brown), the last sometimes faintly barred with darker; middle pair of rectrices brown, more or less distinctly barred with dusky, the remaining rectrices paler brown broadly and regularly barred with dull black, the inner webs blackish serrated along edges and barred entirely across near tip with pale brown; lesser and middle wing-coverts plain brown, the latter sometimes with a small terminal spot of pale brown or dull brownish white; greater coverts brown, more or less distinctly barred with dusky (the bars sometimes obsolete); outer webs of tertials mostly black, but this more or less deeply indented or serrated exteriorly with light brown; remiges otherwise dusky, the secondaries edged, or serrated along edge, with pale brown, the primaries similarly marked with still paler and more grayish brown or pale brownish gray; a narrow superciliary stripe of white, narrowly streaked with blackish, extending to sides of occiput; a brown or dusky postocular streak, varying in width and distinctness; loreal and suborbital regions dull grayish white or brownish white, the auricular region (except upper margin) similar but more strongly tinged with brownish; malar region and under parts dull white, passing on sides and flanks into pale broccoli brown, wood brown, or isabella color, the chest usually faintly (rarely strongly) tinged with the same, the sides and flanks sometimes more or less speckled or indistinctly barred with darker brown or dusky; under tail-coverts brownish white or very pale brown, usually narrowly barred with brownish or dusky, sometimes immaculate; maxilla blackish brown or dusky with paler tomia; mandible pale basally, more or less extensively dusky terminally; iris brown; legs and feet brownish (in dried skins).

Adults in autumn and winter.—Similar to the spring and early summer plumage, but colors deeper and richer, the brown of rump etc., more chestnut, that of sides and flanks deeper.

Young.—Essentially like adults, but pattern of coloration less dis-

^a In late summer the general coloration is, through fading and abrasion of the plumage, much duller, with the brown more grayish. In this condition the several subspecies are much alike, their distinctive coloration having, to a greater or less degree, become obliterated.

tinct, the pileum and hindneck uniform dull blackish, the back very indistinctly, if at all, streaked, and the whitish superciliary stripe less distinct (sometimes nearly obsolete).

Adult male.—Length (skins), 103–117.5 (110); wing, 48–54 (50.6); tail, 38.5–46.5 (41.4); exposed culmen, 14–15.5 (14.7); tarsus, 18.5–21 (20.9); middle toe, 11–14 (12.5).^a

Adult female.—Length (skins), 100.5–115.5 (106.1); wing, 44.5–52.5 (47.7); tail, 37–41.5 (38.7); exposed culmen, 13–15 (14.1); tarsus, 18.5–20 (19.5); middle toe, 10.5–12.5 (11.7).^b

Northeastern United States, chiefly east of the Allegheny Mountains; north to Massachusetts and New York—probably to Ontario—casually to New Brunswick; west to western New York and Pennsylvania; breeds southward to the Potomac Valley and Atlantic coast of Maryland and Virginia; in winter southward to North and South Carolina, occasionally to western Florida (Tarpon Springs, etc.), occasionally wintering in northern portions of its range.

Certhia palustris WILSON, Am. Orn., ii, 1810, 58, pl. 12, fig. 4 (e. Pennsylvania; coll. Peale's Mus., no. 7282; ex *Motacilla palustris*, etc., Bartram, Travels, 291).—LESSON, Traité d'Orn., 1831, 400.

Troglodytes palustris BONAPARTE, Journ. Ac. Nat. Sci. Phila., iii, 1824, 30; Ann. Lyc. N. Y., ii, 1826, 93.—AUDUBON, Orn. Biog., i, 1831, 500, pl. 100; Synopsis, 1839, 77; Birds Am., oct. ed., ii, 1841, 135, pl. 123.—NUTTALL, Man. Orn.

^a Twenty-four specimens.

^b Eighteen specimens.

Specimens from different localities (breeding birds or those taken during or near breeding season only) average, respectively, as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Ten adult males from eastern Massachusetts (<i>T. p. dissruptus</i> Bangs)	51.8	42.1	14.6	20	12.4
Four adult males from coast of New Jersey	49.1	40	14.4	19.5	11.7
Ten adult males from District of Columbia	49.9	41.2	15	20.4	12.9
FEMALES.					
Six adult females from eastern Massachusetts	49.5	39.5	14.2	19.6	11.8
Five adult females from coast of New Jersey	45.9	37	14.3	19.1	11.7
Seven adult females from District of Columbia	47.5	39.3	13.9	19.7	11.5

The five adult females from New Jersey are in greatly worn plumage, which accounts for the lower measurements of their wing and tail.

I am not able to perceive the minutest difference in coloration between Massachusetts birds and those from the District of Columbia, the only difference, apparently, consisting in the slightly larger average dimensions of the former.

^cI have not seen specimens from Ontario, nor from any locality in Ohio or northern Indiana; consequently I am unable to state whether this form or *T. p. iliacus* inhabits the area in question. Most likely, however, it is the present one, the range of *T. p. iliacus* probably not beginning until the prairie districts of western Indiana and Illinois are reached.

- U. S. and Can., i, 1832, 439; 2d ed., i, 1840, 496.—BREWER, Journ. Bost. Soc. N. H., 1837, 437.—PEABODY, Rep. Orn. Mass., 1839, 316.—PUTNAM, Proc. Essex Inst., i, 1856, 208.—REINHARDT, Ibis, 1861, 5 (Gothaab, Greenland, 1 spec., May, 1823).—NEWTON, Man. Nat. Hist. Greenland, 1875, 98.
- Thryothorus palustris* BONAPARTE, Geog. and Comp. List, 1838, 11.—BURNETT, Proc. Bost. Soc. N. H., iv, 1851, 116.—TURNBULL, Birds E. Penn. and N. J., 1869, 27 (Phila. ed., 20).
- Cistothorus (Telmatoodytes) palustris* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 364, part (Carlisle, Pennsylvania).—COUES and PRENTISS, Ann. Rep. Smithsonian Inst. for 1861 (1862), 410 (District of Columbia).—ALLEN, Proc. Essex Inst., iv, 1864, 83 (Massachusetts).
- Cistothorus (Telmatoodytes) palustris palustris* BANGS, Auk, xix, Oct., 1902, 351 (crit.; diagnosis).
- Cistothorus palustris* BAIRD, Cat. N. Am. Birds, 1859, no. 268, part; Review Am. Birds, 1864, 147, part (Carlisle, Pennsylvania; District of Columbia; Whitefield Co., Georgia).—SCLATER, Cat. Am. Birds, 1862, 22, part (New York).—LAWRENCE, Ann. Lyc. N. Y., viii, 1868, 283 (vicinity of New York City).—ALLEN, Bull. Am. Mus. N. H., i, 1886, 260 (Massachusetts).—COUES, Proc. Essex Inst., v, 1868, 278 (New England).—MAYNARD, Nat. Guide, 1870, 98; Birds Florida, 1873, 42, part.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 9, fig. 6.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 725, part.—RIDGWAY, Orn. Illinois, i, 1889, 99, part (in synonymy; description).—SCOTT, Auk, vii, 1890, 117, part (Tarpon Springs, Florida, Dec., Jan.).—FAXON, Auk, vii, 1890, 408 (Cambridge, Massachusetts, Nov. and Dec., 1889, and Jan. and Mar., 1890).—STONE, Auk, ix, 1892, 204 (Cape May, New Jersey, Jan.).—NEHRLING, Our Native Birds, etc., i, 1893, 157, part.—BISHOP, Auk, xi, 1894, 80 (descr. nest and eggs, etc.).—MOORE, Auk, xv, 1898, 192 (Fairville, New Brunswick, 1 spec., Oct. 3, 1895).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 450, part, plate.
- C[istothorus] palustris* RIDGWAY, Man. N. Am. Birds, 1887, 556, part.
- [Cistothorus palustris] var. palustris* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 161, part.
- Cistothorus palustris palustris* BANGS, Auk, xix, Oct., 1902, 352 (range).
- Telmatoodytes palustris* COUES, Proc. Bost. Soc. N. H., xii, 1868, 108 (South Carolina); Proc. Ac. Nat. Sci. Phila., xxiii, 1871, 19 (Fort Macon, North Carolina, Nov.); Check List, 1873, no. 51, part; 2d ed., 1882, no. 79, part; Birds N. W., 1874, 34, part; Birds Col. Val., 1878, 178, part.—BREWSTER, Bull. Nutt. Orn. Club, iii, 1878, 22. (descr. young).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 67, part.—MERRIAM, Bull. Nutt. Orn. Club, vii, 1882, 256 (Lake George, New York, breeding).—BICKNELL, Auk, i, 1884, 138 (song period).
- [Telmatoodytes] palustris* COUES, Key N. Am. Birds, 1872, 87, part.
- [Telmatoodytes] palustris* COUES, Key N. Am. Birds, 2d ed., 1884, 279, part.
- Thryothorus arundineus* (not *Troglodytes arundinaceus* Vieillot, 1807) VIEILLOT, Nouv. Dict. d'Hist. Nat., xxxiv, 1819, 58 (based on *Certhia palustris* Wilson.)
- Telmatoodytes arundinaceus* (not *Troglodytes arundinaceus* Vieillot) CABANIS, Mus. Hein., i, 1850, 78, footnote.
- Troglodytes arundinaceus* (not of Vieillot) REINHARDT, Vid. Med. Nat. Forh. for 1853 (1854), 81 (Greenland); Journ. für Orn., 1854, 438 (Greenland).
- [Telmatoodytes] arundinaceus* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1882, 48.
- Cistothorus (Telmatoodytes) palustris dissæptus* BANGS, Auk, xix, Oct., 1902, 352 (Wayland, Massachusetts; coll. E. A. and O. Bangs).
- Cistothorus palustris dissæptus* BANGS, Auk, xix, Oct., 1902, 352 (range).

The following citations I am unable to properly place, on account of the absence of specimens from the localities referred to. Probably they all pertain to *T. p. palustris*:

Troglodytes palustris READ, Proc. Ac. Nat. Sci. Phila., vi, 1853, 399 (Ohio).

Cistothorus palustris WHEATON, Ohio Agric. Rep., 1860, 365 (Ohio).—McILWRAITH, Proc. Essex Inst., v, 1866, 87 (Hamilton, Ontario); Birds Ontario, 1884, 397 (breeding throughout).

Telmatodytes palustris WHEATON, Rep. Birds Ohio, 1879, 232.

TELMATODYTES PALUSTRIS ILIACUS Ridgway.

PRAIRIE MARSH WREN.

Similar to *T. p. palustris*, but slightly larger and with the coloration much more rufescent, the brown of upper parts russet-brown to cinnamon-brown or russet, the flanks conspicuously deep cinnamon-buff or cinnamon.

Adult male.—Length (skins), 110–127.5 (116.1); wing, 49.5–56 (52.3); tail, 40.5–46.5 (43.6); exposed culmen, 13–15.5 (14.4); tarsus, 19.5–22 (20.6); middle toe, 11.5–13.5 (12.4).^a

Adult female.—Length (skins), 97.5–119.5 (109); wing, 46.5–53.5 (49.6); tail, 37–45.5 (40.2); exposed culmen, 13–15.5 (13.8); tarsus, 18–20.5 (19.3); middle toe, 11.5–12.5 (12.1).^b

^a Fifteen specimens.

^b Twenty specimens.

Specimens from different geographic areas compare in average measurements as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Nine adult males from Indiana, Illinois, and North Dakota..	51.4	42.1	14.4	20.8	12.3
One adult male from Texas (Corpus Christi, March).....	51	44	14	20.5	12.5
Six adult males from Jalisco (Ocotlan, December)	53.1	44.6	14.2	20.1	12.5
FEMALES.					
Four adult females from Illinois and North Dakota	49.9	38.2	14	19.2	12.1
Eight adult females from western Florida (Tarpon Springs, January, March)	48.9	39.3	13.9	19.5	12
One adult female from South Carolina (Mount Pleasant, October).....	46.5	39.5	14	19.5	12
Three adult females from Vera Cruz (Jalapa, April)	49.8	41	13.2	18.5	12
One adult female from Zacatecas (Valparaiso, December) ..	48	39.5	14	19	12
Three adult females from Jalisco (Ocotlan, December).....	52.3	44.7	13.7	19.5	12.3

Although the specimens from Jalisco average decidedly more in length of wing and tail than those from eastern Mexico and the United States they are precisely the same in coloration. Possibly they are migrants from the extreme western (more elevated) portions of the Great Plains region, where the dimensions may increase to approximately those of the Rocky Mountain and Great Basin form (*T. p. plesius*) without being accompanied by any change in coloration.

Great Plains and prairie districts of central United States and south-central British Provinces; north to Alberta (South Edmonton) and, probably, to Manitoba; east to Illinois and western Indiana (Knox County, April 30); southward in winter over greater part of Mexico (except northwestern portion) as far as Vera Cruz (Jalapa), Zacatecas (Valparaiso), and eastern Jalisco (Ocotlan, December), and along Gulf coast of United States to western Florida (Tarpon Springs, January to March; Lake Trafford,^a February), casually to South Carolina (Mount Pleasant,^a October 22), North Carolina (Raleigh,^a August 5), and Virginia (Arlington,^a April 29).

Troglodytes palustris (not *Certhia palustris* Wilson) SWAINSON and RICHARDSON, Fauna Bor.-Am., ii, 1831, 319 (Rocky Mts., 55th parallel N. lat.).—AUDUBON, Orn. Biog., i, 1831, 500, part; Synopsis, 1839, 77, part; Birds Am., oct. ed., ii, 1841, 135, part.—NUTTALL, Man. Orn. U. S. and Can., i, 1832, 439, part; 2d ed., i, 1840, 496, part.—HOY, Proc. Ac. Nat. Sci. Phila., vi, 1853, 312 (Wisconsin).—KENNICOTT, Trans. Ills. Agric. Soc., i, 1855, 583 (Illinois).—TRIPPE, Proc. Essex Inst., vi, 1871, 115 (Iowa).

(?) *Troglodytes palustris* SCLATER, Proc. Zool. Soc. Lond., 1856, 290 (Cordova, Vera Cruz); Ibis 1859, 8 (Guatemala).

Cistothorus (Telmatoodytes) palustris BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 364, part (Nebraska; Texas).

Cistothorus palustris BAIRD, Cat. N. Am. Birds, 1859, no. 268, part; Review Am. Birds, 1864, 147, part (mouth of Big Sioux R.).—HAYDEN, Trans. Am. Philos. Soc., xii, 1863, 163 (Council Bluffs, Iowa; Big Sioux R.).—BLAKISTON, Ibis, 1862, 5 (Saskatchewan); 1863, 67 (near Fort Carlton, Saskatchewan).—SETON, Auk, iii, 1886, 327 (Winnipeg and Waterhen rivers, w. Manitoba; Saskatchewan).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 725, part.—COOKE, Bird Migr. Miss. Val., 1888, 274.—RIDGWAY, Orn. Illinois, i, 1889, 99, part (excl. synonymy, part, and descr.).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1890, 630 (Manitoba, summer resident).—SCOTT, Auk, vii, 1890, 117, part (Tarpon Springs, Florida, Dec., Jan.).—CHAPMAN, Bull. Am. Mus. N. H., iii, 1891, 327 (Corpus Christi, Texas, Mar., Apr.).—NEHRING, Our Native Birds, etc., i, 1893, 157, part.—NUTTING, Bull. Labr. Nat. Hist. State Univ. Iowa, ii, 1893, 279 (Chemawawin, lower Saskatchewan).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 450, part (Manitoba; e. Mexico).

? *Cistothorus palustris* SCLATER, Proc. Zool. Soc. Lond., 1864, 172 (City of Mexico).

C[istothorus] palustris NELSON, Bull. Essex Inst., viii, 1876, 97 (n. e. Illinois).—RIDGWAY, Man. N. Am. Birds, 1887, 556, part.

[*Cistothorus palustris*] var. *palustris* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 161, part.

[*Telmatoodytes*] *palustris* COUES, Key N. Am. Birds, 1872, 87, part.

^a These specimens are not quite typical, the brown of the upper parts being darker and the pileum more dusky than in western and Mexican specimens, as are also some of those in the Florida series. The bright, "foxy" coloring of the flanks, etc., at once serves to separate them from true *T. palustris*, and they seem to be decidedly referable to the interior form rather than that of the Atlantic coast district. Probably they are migrants from the eastern margin of the range of the subspecies, where the coloration may naturally be expected to incline more or less toward that of the coast type.

Telmatodytes palustris RIDGWAY, Am. Nat., vii, 1873, 200, in text (Richland Co., Illinois); Nom. N. Am. Birds, 1881, no. 67, part.—COUES, Check List, 1873, no. 51, part; 2d ed., 1882, no. 79, part; Birds N. W., 1874, 35, part; Birds Col. Val., 1878, 178, part; Bull. U. S. Geol. Surv. Terr., iv, 1878, 555 (Chief Mountain Lake, North Dakota).—MERRILL (J. C.), Proc. U. S. Nat. Mus., i, 1878, 122 (Fort Brown, Texas, Dec.).—ROBERTS and BENNER, Bull. Nutt. Orn. Club, v, 1880, 13 (Grant Co., Minnesota, breeding).—AGERSBERG, Auk, ii, 1885, 278 (s. e. South Dakota, breeding).

T[elmatodytes] palustris COUES, Key N. Am. Birds, 2d ed., 1884, 279, part.

Cistothorus palustris plesius OBERHOLSER, Auk, xiv, Apr., 1897, 188, part (South Edmonton, Alberta; Fort Brown, Texas).—CHAPMAN, Bull. Am. Mus. N. H., x, 1898, 23 (Jalapa, Vera Cruz).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 125, part.—BANGS, Auk, xix, 1902, 352, part (Jalapa).

C[istothorus] p[alustris] plesius BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 451, part.

Cistothorus (Telmatodytes) palustris dissaeptus BANGS, Auk, xix, Oct., 1902, 352, part (southern Manitoba).

Telmatodytes palustris iliacus RIDGWAY, Proc. Biol. Soc. Wash., xvi, Sept. 30, 1903, 110 (Wheatland, Knox Co., Indiana; coll. U. S. Nat. Mus.).

TELMATODYTES PALUSTRIS PLESIUS (Oberholser).

WESTERN MARSH WREN.

Very similar in coloration of upper parts to *T. p. iliacus*, but the brown averaging paler and decidedly less rufescent; upper tail-coverts usually more or less distinctly barred with dusky, and middle rectrices more distinctly barred; color of flanks, etc., conspicuously different, being pale wood brown, pale isabella color, or pale broccoli brown instead of bright buffy cinnamon or tawny-buff, the under tail-coverts usually more or less distinctly barred; wing and tail averaging decidedly longer (especially the tail), culmen averaging slightly shorter.

Adult male.—Length (skins), 110–137 (121.3); wing, 50–57 (54); tail, 45–50.5 (46.4); exposed culmen, 13.5–15 (14.2); tarsus, 18.5–21 (20.1); middle toe, 11.5–13 (12.2).^a

Adult female.—Length (skins), 108–134.5 (114.9); wing, 48.5–57 (52); tail, 40.5–49 (44.8); exposed culmen, 13–14.5 (13.5); tarsus, 18.5–20.5 (19.5); middle toe, 11–12.5 (11.8).^a

Rocky Mountain plateau district of United States and British Columbia; north to eastern and central British Columbia (Okonogan; Ashcroft; Ducks; Caribo Road); west to middle Washington and Oregon (east of Cascade range), northeastern California (Fort Crook; Tule Lake, Eagle Lake, etc.); east to Utah and New Mexico (probably also to Colorado, Wyoming, and Montana), accidentally (?) to western Oklahoma (Beaver River, October 10); during migration southward to Cape district of Lower California (Miraflores; San José del Cabo), Sonora (Senoyta; Santa Cruz River; San Bernardino River), Sinaloa (Mazatlan), Chihuahua (Lake Polomus; Chuchuchupa), northern Tamaulipas (Nuevo Laredo), and central Texas (San Antonio).

^aTen specimens.

- Troglodytes palustris* (not *Certhia palustris* Wilson) GAMBEI, Proc. Ac. Nat. Sci. Phila., iii, 1846, 113 (Rocky Mts.).—NEWBERRY, Rep. Pacific R. R. Surv., vi, 1857, 80, part (Rhett Lake, e. Oregon).—HENRY, Proc. Ac. Nat. Sci. Phila., vii, 1855, 309 (New Mexico).
- Telmatodytes palustris* HENRY, Proc. Ac. Nat. Sci. Phila., xi, 1859, 107 (New Mexico).—COUES, Birds Northwest, 1874, 34, part; Birds Col. Val., 1878, 178, part.—RIDGWAY, Bull. Essex Inst., v, 1873, 180 (Colorado).—DREW, Bull. Nutt. Orn. Club, vi, 1881, 88 (San Juan Co., Colorado).
- [*Telmatodytes*] *palustris* COUES, Key N. Am. Birds, 1872, 87, part.
- Cistothorus palustris* COUES, Ibis, 1865, 164, in text (Fort Whipple, Arizona); Proc. Ac. Nat. Sci. Phila., xviii, 1866, 78 (Fort Whipple).—COOPER, Orn. Cal., 1870, 75, part.—ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 175 (Ogden, Utah).—MERRIAM, Sixth Ann. Rep. U. S. Geol. Surv. Terr. for 1872 (1873), 673 (Fort Hall, Idaho); North Am. Fauna, no. 3, 1890, 100 (San Francisco Mt. plateau, Arizona); no. 5, 1891, 107 (Near Shoshone Falls and Fort Hall, Idaho).—SCOTT, Auk, v, 1888, 165 (Tucson, Arizona).—ATTWATER, Auk, ix, 1892, 343 (San Antonio, Texas, migrant).
- C[istothorus] palustris* HENSHAW, Orn. Rep. Wheeler's Surv., 1879, 288 (w. Nevada).
- Cistothorus stellaris* (not *Troglodytes stellaris* Naumann) ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 166 (Ogden, Utah).
- Cistothorus palustris* var. *paludicola* (not of Baird) LAWRENCE, Mem. Bost. Soc., N. H., ii, 1874, 268 (Mazatlan, Sinaloa).—BENDIRE, Proc. Bost. Soc. N. H., xix, 1877, 113 (Camp Harney, e. Oregon, resident).
- Cistothorus palustris* . . . var. *paludicola* HENSHAW, Zool. Exp. W. 100th Merid., 1875, 185 (excl. syn. part); Orn. Rep. Wheeler's Surv., 1877, 1308 (Washoe Lake, Nevada, numerous in winter).
- Cistothorus palustris*, β . *paludicola* RIDGWAY, Orn. 40th Parallel, 1877, 425, part (localities in Nevada and Utah).
- Cistothorus paludicola* SHARPE, Cat. Birds Brit. Mus., vi, 1881, 242, part (Seemass Prairie and w. side Rocky Mts., British Columbia, Upper Klamath Lake, Oregon).
- C[istothorus] palustris paludicola* RIDGWAY, Man. N. Am. Birds, 1887, 556, part.
- Cistothorus palustris paludicola* MERRILL (J. C.), Auk, v, 1888, 362 (Fort Klamath, e. Oregon, breeding, a few wintering); xv, 1898, 20 (Fort Sherman, Idaho, autumn).—CHAPMAN, Auk, v, 1888, 400, part.—AMERICAN ORNITHOLOGISTS' UNION, Suppl. to Check List, 1889, 16, part; Check List, 2d ed., 1895, no. 725a, part.—FANNIN, Check List Birds Brit. Col., 1891, 43 (e. side of Cascade Range).—FISHER, North Am. Fauna, no. 7, 1893, 136 (Death Valley, etc., s. e. California; Ash Meadows, etc., Nevada).—COOKE, Bull. Col. Agric. Coll., no. 37, 1897, 121 (Colorado; summer resident up to 8,000 ft.).—CHAPMAN, Bull. Am. Mus. N. H., iii, 1900, 152 (interior British Columbia).
- Cistothorus* (*Telmatodytes*) *palustris paludicola* RIDGWAY, Man. N. Am. Birds, 1887, 593, part.
- Telmatodytes palustris* . . . var. *paludicola* YARROW and HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 9 (Provo R., Utah, breeding).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 41 (Utah, resident), 74 (Fort Garland, Colorado, breeding; descr. nest), 101 (New Mexico; Arizona).
- Telmatodytes palustris paludicola* RIDGWAY, Bull. Essex Inst., vii, Jan., 1875, 12, 14 (Truckee Valley, etc., Nevada; Utah); Nom. N. Am. Birds, 1881, no. 67a, part.—BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 227 (Fort Walla Walla, Washington).—COUES, Check List, 2d ed., 1882, no. 80, part.—ALLEN and BREWSTER, Bull. Nutt. Orn. Club, viii, 1883, 155 (Fountain, Colorado).
- Telmatodytes palustris*, β . *paludicola* RIDGWAY, Field and Forest, iii, May, 1877, 196 (Colorado).

T[elmatodytes] p[alustris] paludicola ? COUES, Key N. Am. Birds, 2d ed., 1884, 273, part.

Cistothorus palustris plesius OBERHOLSER, Auk, xiv, Apr., 1897, 188 (Fort Wingate, New Mexico; coll. U. S. Nat. Mus.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 125 (check list no. 725c).—COOKE, Bull. Col. Agric. Coll., no. 56, 1900, 222 (South Park, Colorado, breeding).—BREWSTER, Bull. Mus. Comp. Zool., xli, 1902, 202 (San José del Cabo, Lower California, autumn; crit.).—BANGS, Auk, xix, 1902, 352, part (range).—GRINNELL, Pacific Coast Avifauna, no. 3, 1902, 70.

C[istothorus] p[alustris] plesius BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 451, part.

TELMATODYTES PALUSTRIS PALUDICOLA (Baird).

CALIFORNIA MARSH WREN.

Most like *T. p. palustris*, but tail-coverts usually barred (especially the upper), middle rectrices more distinctly barred, flanks, etc., deeper brown, bill smaller, and tail decidedly longer; agreeing with *T. p. plesius* in barred tail-coverts, more distinctly barred tail, and relatively longer tail, but decidedly smaller and with coloration decidedly darker.

Adult male.—Length (skins), 104.5–124 (112.6); wing, 47.5–53.5 (50.7); tail, 41–47.5 (44.4); exposed culmen, 12–14.5 (13.4); tarsus, 19–21 (20); middle toe, 11.5–13 (12.4).^a

Adult female.—Length (skins), 109.5–117.5 (112); wing, 47–52.5 (49); tail, 40.5–47.5 (42.7); exposed culmen, 12.5–13.5 (13); tarsus, 18.5–20 (19); middle toe, 11.5–12.5 (12.3).^b

Pacific coast district, from western British Columbia (Chilliwack) southward during migration to Cape district of Lower California (San José del Cabo) and northwestern Sonora (mouth of Colorado River).

Troglodytes palustris (not *Certhia palustris* Wilson) GAMBEL, Proc. Ac. Nat. Sci. Phila., iii, 1846, 113 (California).—HEERMANN, Journ. Ac. Nat. Sci. Phila., ii, 1853, 263 (Sacramento Valley, California); Rep. Pacific R. R. Surv., i, 1859, 41 (California).—NEWBERRY, Rep. Pacific R. R. Surv., vi, 1857, 80, part (California).

Cistothorus (Telmatodytes) palustris BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 361, part (Shoalwater Bay, Washington; Sacramento Valley and Fort Teja, California); Cat. N. Am. Birds, 1859, no. 268, part.

Cistothorus palustris XANTUS, Proc. Ac. Nat. Sci. Phila., xi, 1859, 191 (Fort Teja, California).—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. 2, 1860, 190 (vicinity of Puget Sound, Washington).—SCLATER, Cat. Am. Birds, 1862, 22, part (California).—COOPER, Orn. Cal., 1870, 75, part.—ANTHONY, Auk, iii, 1886, 171 (Washington Co., Oregon, summer resident).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 725, part.

Certhia palustris (not of Wilson) LORD, Proc. Roy. Art. Inst. Woolwich, iv, 1864, 117 (British Columbia).

[Telmatodytes] palustris COUES, Key N. Am. Birds, 1872, 87, part.

^a Ten specimens.

^b Seven specimens.

- Telmatodytes palustris* COUES, Check List, 1873, no. 51, part; Birds Northwest, 1874, 34, part; Birds Col. Val., 1878, 178, part.
- Cistothorus palustris*, var. *paludicola* BAIRD, Review Am. Birds, Sept., 1864, 148 (Shoalwater Bay, Washington; coll. U. S. Nat. Mus.).
- [*Cistothorus palustris*] var. *paludicola* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 161, part.
- Cistothorus palustris* . . . var. *paludicola* HENSHAW, Orn. Rep. Wheeler's Surv., 1876, 232, Fort Tejon, California).
- Cistothorus palustris paludicola* GOODE, Bull. U. S. Nat. Mus., no. 20, 1883, \$14.—CHAPMAN, Auk, v, 1888, 400, part.—LAWRENCE (R. H.), Auk, ix, 1892, 357 (Grays Harbor, Washington).—OBERHOLSER, Auk, xiv, 1897, 193 (synonymy; descr.; crit.).—GRINNELL, Pub. 2, Pasadena Ac. Sci., 1898, 49 (Los Angeles Co., California, resident).—RATHBUN (S. F.), Auk, xix, 1902, 139 (Seattle, Washington, resident).—FISHER (W. K.), Condor, iv, 1902, 135 (Crescent City, California).—BREWSTER, Bull. Mus. Comp. Zool., xli, 1902, 201 (San José del Cabo, San José del Rancho, and Santiago, Lower California, autumn and winter).—BANGS, Auk, xix, 1902, 352 (range).
- C[istothorus] palustris paludicola* RIDGWAY, Man. N. Am. Birds, 1887, 556, part.
- C[istothorus] p[alustris] paludicola* BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 450.
- Cistothorus* (*Telmatodytes*) *palustris paludicola* RIDGWAY, Man. N. Am. Birds, 1887, 593, part.
- Telmatodytes palustris paludicola* RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 170, 215, part; Nom. N. Am. Birds, 1881, no. 67a, part.—COUES, Check List, 2d ed., 1882, no. 80, part.
- Telmatodytes palustris* . . . β *paludicola* RIDGWAY, Orn. 40th Parallel, 1877, 425, part (in synonymy).
- Telmatodytes palustris*, β *paludicola* BELDING and RIDGWAY, Proc. U. S. Nat. Mus., i, 1879, 403 (Stockton and Marysville, California).
- T[elmatodytes] p[alustris] paludicola* COUES, Key N. Am. Birds, 2d ed., 1884, 279, part.

TELMATODYTES PALUSTRIS MARIANÆ (Scott).

MARIAN'S MARSH WREN.

Similar to *T. p. palustris*, but smaller, and coloration much darker; pileum usually entirely black or with black largely predominating; white streaks of interscapular region narrower, sometimes almost obliterated; brown of scapulars, rump, etc., darker,^a the upper tail-coverts (sometimes the whole rump) usually barred with dusky; sides

^a As in *T. p. palustris* and other conspecific forms (except, apparently, *T. p. griseus*) there is great variation in the hue of the brown, which is grayer (deep broccoli brown, verging toward olive) in summer, usually deep mummy brown to chestnut-brown in winter, but this variation is not entirely dependent on season, some mid-winter specimens (the types, for example), although in fresh plumage, having the brown of the same olive or broccoli hue seen in worn midsummer specimens. In view of the great constancy in the hue of the brown in other forms, when specimens of corresponding season are compared, it is difficult to understand the very great variation in the present form, as at present understood. I very strongly suspect that in reality two forms are involved in the question, but until additional southern localities are represented by series of specimens taken during the breeding season, it is scarcely possible to settle the matter.

and flanks more extensively, and usually darker, brown than in *T. p. palustris*, the chest often strongly shaded pale brown or brownish buff; frequently the chest or sides (or both) are speckled with dusky, and sometimes the sides and flanks are barred with darker brown; under tail-coverts distinctly, often broadly, barred with brown or dusky; mandible usually dusky for much the greater part of its length.

Adult male.—Length (skins), 100–113 (106.9); wing, 47.5–52 (48.2); tail, 37–43 (39.1); exposed culmen, 14–15.5 (14.4); tarsus, 19–20.5 (19.8); middle toe, 11–12 (11.6).^a

Adult female.—Length (skins), 96.5–114.5 (105.3); wing, 40–48.5 (44.7); tail, 34.42 (39.1); exposed culmen, 13–14 (13.5); tarsus, 17.5–20.5 (18.7); middle toe, 10.5–12 (11.2).^b

South Atlantic coast of United States, from North Carolina (Pea Island,^c Gull Island Shoal,^c Roanoke Island,^c Bogue Bank) to South Carolina (near Charleston) and western Florida (Tarpon Springs, November to February; Anclote, February to April).

Cistothorus marianæ SCOTT, Auk, v, Apr., 1888, 188 (Tarpon Springs, s. w. Florida; coll. W. E. D. Scott^d); vii, 1890, 117 (Tarpon Springs to Cedar Keys; habits); ix, 1892, 214 (Caloosahatchie R., winter).—CHAPMAN, Auk, v, 1888, 400.—WAYNE, Auk, viii, 1891, 239 (Mount Pleasant, South Carolina, 1 spec., Dec 16); xvi, 1899, 361 (Mount Pleasant, Apr. 16; crit.).—BREWSTER, Auk, x, 1893, 215–219 (crit.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 2d ed., 1895, no. 725.1.—BISHOP, Auk, xviii, 1901, 268 (Pea Island, North Carolina, Feb. 8).—BANGS, Auk, xix, 1902, 353 (range).

C[istothorus] p[alustris] marianæ BREWSTER, Auk, x, July, 1893, 218, 219 (crit.).

Cistothorus palustris marianæ RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 610.

Cistothorus palustris griseus (not of Brewster) PEARSON, Auk, xvi, 1899, 250 (Top-sail Inlet, near Beaufort, North Carolina, Aug. 2; Gull Island, Pimlico Sound, North Carolina, breeding.)

TELMATODYTES PALUSTRIS THRYOPHILUS Oberholser.

LOUISIANA MARSH WREN.

Similar to *T. p. marianæ*, but paler and still smaller; pileum always extensively brown medially, often mostly brown; brown of scapulars, rump, etc., lighter, sometimes approaching broccoli brown or dark upper tail-coverts unbarred, or with bars very indistinct; under parts never (?) speckled, but chest more or less strongly tinged with brownish buff, and sides and flanks extensively brown. Differing from *T. p. palustris* in decidedly smaller size, duller brown of upper parts, and more extensively brown under parts.

Adult male.—Length (skins), 106–110 (107.7); wing, 47–48 (47.4); tail, 40–41 (40.4); exposed culmen, 12.5–14 (13.1); tarsus, 20–20.5 (20.1); middle toe, 13–14 (13.6).^e

^a Fourteen specimens.

^b Seven specimens.

^c Breeding at these localities.

^d Type now in coll. Am. Mus. N. H.

^e Four specimens.

Adult female.—Length (skins), 97–102 (99.5); wing, 43–47 (44.7); tail, 35–38 (36.5); exposed culmen, 12–13.5 (12.8); tarsus, 18.5–19 (18.7); middle toe, 13.^a

Coast district of Louisiana and Texas (Sabine, September).

Cistothorus palustris (not *Certhia palustris* Wilson) BEYER, Proc. Louis. Soc. Nat. for 1897–99 (1900), 42 (Louisiana; resident).

Telmatodytes palustris thryophilus OBERHOLSER, Proc. Biol. Soc. Wash., xvi, Nov. 12, 1903, 149 (Sabine, Texas, Sept. 3; coll. U. S. Nat. Mus.).

TELMATODYTES PALUSTRIS GRISEUS (Brewster).

WORTHINGTON'S MARSH WREN.

Most like *T. p. marianæ*, but much paler and grayer, with black of upper parts greatly reduced in extent; brown of upper parts grayish olive to slightly brownish olive; pileum usually mostly olive, with lateral portions, only, dusky, this sometimes nearly obsolete; interscapular region largely, sometimes entirely, olive, the white streaks sometimes very few in number and confined to extreme upper back; upper tail-coverts often plain olive, but usually with more or less distinct darker bars; sides and flanks light grayish olive or hair brown, with or without darker bars.

Adult male.—Length (skins), 99.5–109 (106.5); wing, 45–48 (46.7); tail, 37–40 (38); exposed culmen, 13.5–15.5 (14.4); tarsus, 19–20.5 (20); middle toe, 11.5–13 (12).^b

Adult female.—Length (skins), 94.5–104 (99.1); wing, 43–44 (43.5); tail, 33–36.5 (34.2); exposed culmen, 13.5–14 (13.6); tarsus, 18–19.5 (18.7); middle toe, 10.5–11.5 (11).^c

South Atlantic coast of United States, from southern South Carolina (Mount Pleasant; ^d near Charleston) to northern Florida (Anastasia Island).^d

Cistothorus palustris marianæ (not *C. marianæ* Scott) BREWSTER, Auk, v, Oct., 1888, 432 (Sapelo I., Georgia).

Cistothorus marianæ (not of Scott) WAYNE, Auk, viii, 1891, 239 (Mount Pleasant, South Carolina)—RIDGWAY, Auk, viii, 1891, 240 (near Charleston, South Carolina).

Cistothorus palustris griseus BREWSTER, Auk, x, July, 1893, 216 (Sapelo I., Georgia; coll. W. Brewster).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 2d ed., 1895, no. 725b.—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 610.—WAYNE, Auk, xvi, 1899, 361 (Mount Pleasant, South Carolina; crit.).

Cistothorus griseus BANGS, Auk, xix, 1902, 353 (range).

^a Three specimens.

^b Six specimens.

^c Four specimens.

^d Breeding in these localities.

Genus HELEODYTES Cabanis.

Campylorhynchus (not *Campylirhynchus* Megerle, 1821) SPIX, Av. Bras., i, 1824.

• 77. (Type, *C. scolopaceus* Spix, = *Turdus variegatus* Gmelin.)

Kampylorhynchus SPIX, Av. Bras., i, 1824, pl. 79.

"*Kampilorhynchus*, LESSON."

Heleodytes^a CABANIS, Mus. Hein., i, 1850, 80. (Type, *Furnarius griseus* Swainson.)

Buglodytes BONAPARTE, Compt. Rend., xxxviii, 1854, 57. (Type, *Furnarius griseus* Swainson.)

(?) *Odontorhynchus* PELZELN, Orn. Bras., i, 1868, 67. (Type, *O. cinereus* Pelzel.)

Medium sized to rather large Troglodytidae (wing 63–85 mm.) with the nostril of variable form (small, roundish, nonoperculate, beveled into anterior end of nasal fossa, the latter otherwise covered with naked integument, longitudinal and operculated, or variously intermediate) and with the tail nearly as long as wing.

Bill nearly as long as head, stout, more or less, though never strongly, decurved terminally; exposed culmen longer than middle toe (without claw), straight at base, but soon gradually and gently decurved, more strongly so terminally; gonys decidedly shorter than distance from nostril to tip of maxilla, straight, or sometimes almost inappreciably concave terminally; maxillary tomium decidedly but not strongly concave, without trace of subterminal notch; depth of bill at frontal antiae about equal to its width at same point. Nostril variable; sometimes small, roundish, nonoperculate, beveled into anterior end of nasal fossa, bordered behind and at least partly above by membrane, which separates for a considerable distance (equal at least to the length of the nostril) the nostril from feathering of the latero-frontal antiae; sometimes longitudinal, narrowly pyriform, overhung by a prominent operculum, and in contact posteriorly with latero-frontal feathering. Rictal bristles obvious, though only one or two are well developed. Wing moderate or rather short, much rounded; seventh, sixth, and fifth primaries longest, the eighth and fourth but little shorter; ninth about as long as secondaries, less than twice as long as tenth. Tail nearly as long as wing, decidedly rounded, the rectrices with tip broadly rounded. Tarsus decidedly longer than exposed culmen, less than two-fifths as long as wing, stout, the acrotarsium very distinctly scutellate, the planta tarsi with both extremities scutellate, the heel joint also with distinct scutella; middle toe (without claw) about two-thirds as long as tarsus; lateral toes short, of nearly equal length, the inner (without claw) reaching to, the outer slightly beyond, middle (subterminal) joint of middle toe; hallux (without claw) slightly longer than outer toe (without claw), much stouter than anterior toes, its claw decidedly shorter than the digit; claws without lateral grooves; basal phalanx

^a "Ἑλεός, τὸ, Wiese, Bruch."

of middle toe coherent to outer toe for most of its length, to inner toe for nearly as much.

Coloration.—A broad superciliary stripe of white or pale buffy, with a black or brown stripe below it on side of head; sides of head below this black or brown stripe and under parts white or buffy, with or without dusky spots or bars; upper parts brown, usually much variegated; whole head sometimes white; tail usually more or less banded.

Nidification (at least of some species).—Nest very bulky, placed in thorny bushes (especially cacti), more or less flask shaped (the entrance at one end), composed of dried grasses, twigs, etc., lined with softer materials; eggs, 4-7, whitish or buffy, more or less speckled with reddish brown.

Range.—Southwestern United States to Brazil, Bolivia, and Peru.

KEY TO THE SPECIES AND SUBSPECIES OF HELEODYTES.

- a. Pileum and hindneck white; rest of upper parts uniform sooty brown. (Isthmus of Panama.) *Heleodytes albobrunneus* (p. 503)
- aa. Pileum and hindneck not white; rest of upper parts more or less variegated, especially the wings, which are conspicuously banded.
 - b. Under parts wholly immaculate white or buffy white.
 - c. Larger (wing 86, tail 76, tarsus 29); middle rectrices barred with black and chestnut. (State of Chiapas, southwestern Mexico.)
..... *Heleodytes chiapensis* (p. 504)
 - cc. Smaller (wing less than 80, tail less than 75, tarsus less than 28); middle rectrices plain black, or black barred or mottled with brownish gray. (*Heleodytes capistratus*.)
 - d. Middle rectrices barred with brownish gray. (Guatemala to Costa Rica.)
..... *Heleodytes capistratus capistratus* (p. 504)
 - dd. Middle rectrices plain black, except at tips. (State of Chiapas, southwestern Mexico.) *Heleodytes capistratus nigricaudatus* (p. 506)
 - bb. Under parts not immaculate white; if immaculate the color not white, but dull fulvous.
 - c. Hindneck plain rusty brown or cinnamon; under parts plain whitish, only the under tail-coverts conspicuously marked (spotted or barred) with dusky, the remaining portions immaculate or inconspicuously speckled.
 - d. Pileum uniform black; postocular stripe black; under parts more or less distinctly speckled. (Southeastern Mexico.)
..... *Heleodytes rufinucha*, adults (p. 507)
 - dd. Feathers of pileum margined with brown; postocular stripe brown; under parts (except under tail-coverts usually immaculate, never distinctly speckled). (Southwestern Mexico.) *Heleodytes humilis*, adults (p. 508)
 - cc. Hindneck not rusty brown or cinnamon, but more or less distinctly streaked with dusky and whitish.
 - d. Pileum uniform dull black.
 - e. Under parts wholly immaculate; a broad postocular stripe of black; black bars on lateral rectrices much narrower than pale cinnamon or cinnamon-whitish interspaces. *Heleodytes gularis*, young (p. 527)
 - ee. Under parts not wholly immaculate; a narrow postocular streak of blackish; black bars on lateral rectrices not narrower than pale cinnamon or grayish buffy interspaces.
 - f. Breast, etc., conspicuously spotted with dusky.
..... *Heleodytes jocosus*, young (p. 525)

- ff.* Breast not spotted.
- g.* Posterior under parts dull fulvous, unbarred; chest more or less mottled or clouded with dusky. *Heleodytes zonatus*, young (p. 514)
- gg.* Posterior under parts pale dull buffy, broadly barred with dusky; chest immaculate. *Heleodytes megalopterus*, young (p. 514)
- dd.* Pileum brown or gray, the feathers with more or less distinct dusky centers.
- e.* Back banded or broadly barred with black and dull white or pale fulvous.
- f.* Posterior under parts tawny-buff or tawny-ochraceous. (*Heleodytes zonatus*, adults.)
- g.* Posterior under parts little, if at all, spotted or barred with black, usually immaculate (except under tail-coverts).
- h.* Larger; adult male averaging, wing 83.1, tail 86.2, tarsus 26.3; adult female, wing 80.7, tail 82.9, tarsus 25.9. (Southeastern Mexico to Honduras.) *Heleodytes zonatus zonatus*, adults (p. 510)
- hh.* Smaller; adult male averaging, wing 76, tail 72.2, tarsus 23.7; adult female, wing 69.5, tail 64.8, tarsus 21.8. (Costa Rica.)
Heleodytes zonatus costaricensis, adults (p. 512)
- gg.* Posterior under parts conspicuously banded or spotted with black (State of Tabasco, and adjoining parts of Oaxaca, southeastern Mexico; northeastern Guatemala.)
Heleodytes zonatus restrictus, adults (p. 512)
- ff.* Posterior under parts dull whitish, like anterior portions.
- g.* Larger, darker, and less tinged with brown; bands on back, etc. nearly pure white; spots on under parts nearly black; adult male averaging, wing 91.4, tail 84.5, exposed culmen 22.2, tarsus 27.5; adult female, wing 85.9, tail 78.9, exposed culmen 18.7, tarsus 26.7. (Southwestern portion of Mexican plateau.)
Heleodytes megalopterus, adults (p. 513)
- gg.* Smaller, paler, and more brownish; bands on back, etc., dull brownish white or pale brownish buff; spots on under parts grayish brown; adult male averaging, wing 88.6, tail 73.6, tarsus 27.3; adult female, wing 86.5, tail 75.5. (Southeastern portion of Mexican plateau.) *Heleodytes nelsoni*, adults (p. 514)
- ee.* Back streaked or spotted with whitish, the marking always more or less longitudinal, never regularly transverse.
- f.* Throat streaked or spotted with blackish; back streaked or striped with white, the white streaks margined on each side by black.
- g.* Pileum grayish brown or brownish gray (centers of feathers distinctly dusky); under tail-coverts and flanks barred with black. (Yucatan.) *Heleodytes guttatus*, adults (p. 516)
- gg.* Pileum sepia to chestnut-brown, the centers of feathers indistinctly dusky; flanks and under tail-coverts with roundish or cordate spots of blackish. (*Heleodytes brunneicapillus*.)
- h.* Tail more extensively banded, the lateral rectrices usually with white bands on whole of inner web; brown of pileum more rufescent; back usually broadly and conspicuously streaked with white.
- i.* Posterior under parts deep cinnamon-buff; bill and feet smaller (adult male averaging, wing 84.3, tail 78.9, exposed culmen 21.4, tarsus 27.5; adult female, wing 80.3, tail 75.4, exposed culmen 20.1, tarsus 26.3). (Southern Sonora.)
Heleodytes brunneicapillus brunneicapillus (p. 517)
- ii.* Posterior under parts faintly tinged with buff; bill and feet larger.

- j. Darker, with under parts more densely spotted and black streaks on back broader; adult male averaging, wing 84, tail 78, exposed culmen 23.2, tarsus 28.5. (Pacific coast, from San Diego County, California, to San Quentin, Lower California.)
Heleodytes brunneicapillus bryanti (p. 519)
- jj. Paler, with under parts less densely spotted and black streaks on back narrower; adult male averaging, wing 85.3, tail 77.5, exposed culmen 23.5, tarsus 29. (Cape district of Lower California.) *Heleodytes brunneicapillus affinis* (p. 520)
- hh. Tail less banded, the inner web of lateral rectrices marked with white only toward ends, or very rarely barred for greater part of its length; brown of pileum duller (usually more nearly sepia than chestnut); back more irregularly and less conspicuously streaked.
- i. Smaller (adult male averaging, wing 85.1, tail 76.4, exposed culmen 19.5, tarsus 27.2; adult female, wing 80.3, tail 74.1, exposed culmen 22.2, tarsus 26.1). (Central portion of Mexican plateau.)
Heleodytes brunneicapillus obscurus (p. 521)
- ii. Larger (adult male averaging, wing 86.7, tail 80.7, exposed culmen 23.3, tarsus 28.3; adult female, wing 83.3, tail 78.7, exposed culmen 22.1, tarsus 27.6). (Northern portion of Mexican plateau and contiguous portion of United States, from Texas to southern California, southern Nevada, and southern Utah.) *Heleodytes brunneicapillus couesi* (p. 522)
- ff. Throat immaculate white; back variegated with small guttate, triangular, or diamond-shaped spots of whitish and larger, more or less transverse, spots of black.
- g. Pileum dusky, the feathers narrowly margined with grayish brown; postocular stripe dusky; posterior under parts whitish, the under tail-coverts broadly barred with black; inner web of lateral rectrix mostly plain dusky. (Southeastern Mexico.)
Heleodytes jocosus, adults (p. 524)
- gg. Pileum brown (mummy brown to dull seal brown), the feathers dusky centrally; postocular stripe brown; posterior under parts cinnamon-buff, the under tail-coverts without black bars (rarely with a few small black spots). (West-central Mexico, north to southern Chihuahua.) *Heleodytes gularis* (p. 526)

HELEODYTES ALBOBRUNNEUS Lawrence.

WHITE-HEADED CAOTUS WREN.

Adult male.—Head, neck, and under parts, including axillars and under wing-coverts, immaculate white, the axillars and under wing-coverts sometimes clouded or indistinctly streaked with light grayish brown; outer side of thighs partly grayish brown; under tail-coverts brownish white or pale brownish buff, more or less spotted, streaked, or clouded with grayish brown; upper parts (except pileum and hind-neck) uniform sooty brown (deep sepia); bill horn color, with paler tomia; legs and feet horn color (in dried skins); length (skins), 175–190 (183.8); wing, 79–88 (83.7); tail, 72–84 (77.4); exposed culmen, 19–23 (20.6); tarsus, 25–26.5 (25.5); middle toe, 15.5–17.5 (16.7).^a

Adult female.—Similar to the adult male, but pileum and hindneck

^a Six specimens.

(or the former only) more or less streaked or clouded with light grayish brown; length (skins), 165–191 (178); wing, 78–85.5 (81.7); tail, 76–80 (78); exposed culmen, 21–21.5 (21.2); tarsus, 25; middle toe, 16–17 (16.5).^a

Isthmus of Panama (Panama; El Real, Darien; Loma del Leon: San Pablo; Frijole Station), north to Veragua.

Heleodytes albo-brunneus LAWRENCE, Ibis, 1st ser., iv, Jan., 1862, 10 (Lion Hill, Panama R. R.; coll. G. N. Lawrence).

Heleodytes albobrunneus LAWRENCE, Ann. Lyc. N. Y., vii, 1862, 470 (Lion Hill).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 344 (San Pablo, Panama R. R.).

[*Campylorhynchus*] *albobrunneus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 5. *Campylorhynchus albibrunneus* BAIRD, Review Am. Birds, 1864, 98 (Frijole Station, Panama R. R.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 63 (Veragua; Frijole, Lion Hill, and San Pablo stations).—SHARP, Cat. Birds Brit. Mus., vi, 1881, 188.

[*Donacobius*] *albobrunneus* GRAY, Hand-list, i, 1869, 193, no. 2632.

HELEODYTES CHIAPENSIS (Salvin and Godman).

CHIAPAS CACTUS WREN.

Apparently similar to *H. capistratus* but larger, and with the four middle rectrices barred with black and chestnut.

Adults.—Above chestnut, the pileum, hindneck, and postocular stripe black; wings blackish, outwardly chestnut, lightly barred with black; elongated superciliary stripe and under parts of body white, the flanks, thighs, and under tail-coverts pale isabella color; under wing-coverts white; tail black, with a subterminal band of white, diminishing in width toward middle rectrices; four middle rectrices externally chestnut, barred with black to the base; maxilla black, mandible pale, feet plumbeous; length, 195; wing, 86; tail, 76; bill to rictus, 35.5; tarsus, 29.^b

State of Chiapas, southern Mexico (Tonala).

Messrs. Salvin and Godman compare this species with *H. griseus* and *H. bicolor*, of South America, and state that "from *C. capistratus* . . . the new bird is so different that comparison is unnecessary." It is unfortunate they did not state in just what particulars of coloration it differs from the last-named species.

Campylorhynchus chiapensis SALVIN and GODMAN, Ibis, 6th ser., iii, Oct., 1891, 609 (Tonala, Chiapas, s. w. Mexico; coll. Salvin and Godman).

HELEODYTES CAPISTRATUS CAPISTRATUS (Lesson).

HOODED CACTUS WREN.

Adults in summer.—Pileum uniform black; hindneck plain chestnut or dark cinnamon-rufous, becoming darker on nape, where adjoining black of pileum; back and scapulars dull chestnut or cinnamon-rufous,

^a Two specimens.

^b Free translation of the original description, in Latin, with measurements converted into millimeters.

more or less variegated with irregular spots of blackish and streaks of whitish or pale rusty; rump dull cinnamon-rufous or cinnamon-brown, streaked with whitish, the whitish streaks margined laterally with black; upper tail-coverts broadly barred with black, pale rusty, and whitish; tail black, the middle rectrices barred with light brownish gray, the others extensively white terminally (white broadest on lateral pair), the white terminal area on each rectrix clouded or irregularly spotted at terminal margin with brownish gray and dusky, the outermost rectrix with outer web broadly barred with white; wings black, broadly barred with pale rusty or cinnamon, the rusty color prevailing on tertials (except in very worn plumage), the spots on outer webs of primaries inclining to pale buff or (in worn and faded plumage) buffy white; a broad superciliary stripe of buffy white or pale buff; lores and a broad postocular stripe black; sides of head (below black loreal and postocular stripe) and entire under parts, including under wing-coverts, pale buff or buffy white, deeper or more pronouncedly buff on flanks and under tail-coverts; outer posterior portion of thighs tinged or mottled with brown; maxilla black or dusky; mandible horn color, becoming paler on lower portion; legs and feet horn color (in dried skins).

Adults in winter.—Similar to the summer plumage, but colors deeper, back uniform dull chestnut or cinnamon-chestnut, and upper tail-coverts more indistinctly barred.

Young.—Similar to adults, but back conspicuously spotted (irregularly) with black and brownish buff, and posterior under parts not more pronouncedly buffy than other portions.

Adult male.—Length (skins), 155–188 (170.3); wing, 72–79 (76.2); tail, 64–74 (67.9); exposed culmen, 20–25 (22.1); tarsus, 26–27.5 (26.2); middle toe, 16–18 (17.3).^a

Adult female.—Length (skins), 155–165 (162.3); wing, 68.5–75 (71.4); tail, 59–65 (60.9); exposed culmen, 20–22 (21); tarsus, 22–26 (23.8); middle toe, 15.5–18 (16.6).^b

^a Nine specimens.

^b Seven specimens.

Specimens from different localities average, respectively, as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Three adult males from Honduras (San Pedro Sula).....	76	65.3	22	26	17
Three adult males from Nicaragua.....	76	70.7	22.3	26.5	17.2
Three adult males from Costa Rica.....	76.7	67.7	22	26	17.7
FEMALES.					
Three adult females from Honduras (San Pedro Sula).....	71.6	60.3	21.1	23	17
One adult female from Nicaragua.....	73	65	20	26	18
Three adult females from Costa Rica.....	70.5	60	22.5	23.8	15.8

Guatemala (Savana Grande; Escuintla; Plain of Zacapa; Chuacus; Trapiche Grande; Naranjo; Retalhuleu) through Salvador, Honduras, and Nicaragua to Costa Rica (Punta Arenas; San Mateo; Tárcoles; Bebedero; La Palma de Nicoya; Trojas; Volcan de Miravalles).

Picolaptes capistrata LESSON, Rev. Zool., v, 1842, 174 (Realejo, Nicaragua).—DE MURS, Icon., Orn., 1845-49, pl. 63.

[*Campylorhynchus*] *capistratus* GRAY, Gen. Birds, i, 1847, 159.—SCLATER, Proc. Ac. Nat. Sci. Phila., viii, 1856, 264.—SALVIN and GODMAN, Ibis, 1889, 335, in text (crit.).

Campylorhynchus capistratus SCLATER, Cat. Am. Birds, 1862, 17, part (Honduras; Escuintla, Guatemala).—SCLATER and SALVIN, Ibis, 1859, 8 (Belize, British Honduras); Proc. Zool. Soc. Lond., 1870, 836 (San Pedro, Honduras).—TAYLOR, Ibis, 1860, 317 (Honduras, Pacific side).—BAIRD, Review Am. Birds, 1864, 104 (Savana Grande, Guatemala; Punta Arenas, Costa Rica).—LAWRENCE, Ann. Lyc. N. Y., ix, 1862, 92 (San Mateo, Costa Rica).—BOUCARD, Ois. Guat., 1878, 29.—SALVIN, Ibis, 1866, 202 (Guatemala); Cat. Strickland Coll., 1882, 75 (Guatemala).—SALVIN and GODMAN, Biol. Centr. Am., Aves, i, 1880, 64 (Plain of Zacapa, Chuacus, Trapiche Grande, Savana Grande, Escuintla, Naranjo and Retalhuleu, Guatemala; Acajutla and La Union, Salvador; Belize, British Honduras; San Pedro, etc., Honduras; Realejo and San Juan del Sur, Nicaragua; Punta Arenas, San Mateo, and Bebedero, Costa Rica).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 191 (Guatemala; Realejo, Nicaragua; Costa Rica).—RIDGWAY, Proc. U. S. Nat. Mus., v, 1882, 389 (La Palma de Nicoya, Costa Rica; crit.); vi, 1883, 381 (Sucuyá, Nicaragua; crit.); xi, 1888, 538 (Costa Rica; crit.).—ZELEDON, Cat. Aves de Costa Rica, 1882, 3; Proc. U. S. Nat. Mus., viii, 1885, 105; Anal. Mus. Nac. Costa Rica, i, 1887, 105 (Tárcoles and San Mateo, Costa Rica).—NUTTING, Proc. U. S. Nat. Mus., v, 1882, 389 (La Palma, Costa Rica; habits; song); vi, 1883, 373 (San Juan del Sur, Nicaragua; habits, song, etc.), 381 (Sucuyá; habits, etc.).—CHERRIE, Proc. U. S. Nat. Mus., xiv, 1891, 518 (San Mateo and Trojas, Costa Rica; crit.).—UNDERWOOD, Ibis, 1896, 433 (Volcan de Miravalles, Costa Rica).—LANTZ, Trans. Kansas Ac. Sci. for 1896-97 (1899), 224 (Naranjo, Guatemala).

[*Campylorhynchus*] *capistratus* GRAY, Hand-list, i, 1869, 192, no. 2641.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 5.

Heleodytes capistratus CABANIS, Journ. für Orn., 1860, 409, part (Costa Rica).

Campylorhynchus rufinucha (not of Lafresnaye) SALVIN, Ibis, 1866, 191 (Chuacus, Montagna Valley, Guatemala).

Campylorhynchus castaneus RIDGWAY, Proc. U. S. Nat. Mus., x, sig. 32, Aug. 6, 1888, 507 (Honduras; coll. U. S. Nat. Mus.).

HELEODYTES CAPISTRATUS NIGRICAUDATUS Nelson.

BLACK-TAILED CACTUS WREN.

Similar to *H. c. capistratus*, but chestnut of upper parts darker (quite uniform over whole back, scapulars, and upper rump in specimens taken during February and March) and exposed portion of middle pair of rectrices plain black, except terminal portion.^a

^a Very rarely (in two out of eleven specimens) there are very faint indications of the brown bands always present in *H. c. capistratus*.

Adult male.—Length (skins), 161–190 (177.1); wing, 73–77 (75.8); tail, 63–71 (68); exposed culmen, 22–24 (22.9); tarsus, 25–27 (26); middle toe, 16–18 (17).^a

Adult female.—Length (skins), 165–172 (167.4); wing, 70–72 (71.2); tail, 63–65 (64); exposed culmen, 20–22 (21); tarsus, 25; middle toe, 16.^b

Pacific coast of Chiapas (Huehuetan; San Benito), “and thence into adjacent parts of Guatemala.”^c

Heleodytes capistratus nigricaudatus NELSON, Auk, xiv, Jan., 1897, 70 (San Benito, Chiapas, s. w. Mexico; coll. U. S. Nat. Mus.).

HELEODYTES RUFINUCHA (Lafresnaye).

RUFous-NAPED CACTUS WREN.

Somewhat like summer adults of *H. capistratus*, but smaller, the back much less reddish brown, and always conspicuously variegated; superciliary stripe and under parts less buffy white; under parts always more or less speckled or flecked with dusky (at least on sides and flanks), and under tail-coverts barred with black.

Adults (sexes alike).—Pileum uniform black, the occiput sometimes tinged with brown; hindneck mummy brown or dark russet; back, scapulars, and rump brown (varying from prouts brown to broccoli brown or drab), conspicuously variegated with white streaks (these narrower and linear on rump, broader, occasionally spot-like, on back and scapulars), the white streaks margined laterally with black; upper tail-coverts brown (slightly paler than rump) more or less distinctly barred with black or dusky; two middle rectrices pale grayish brown, more or less distinctly barred with black, the black bars interrupted medially; rest of tail dull black, broadly tipped with white, this passing into pale grayish brown terminally; outer webs of rectrices broadly barred or transversely spotted with white (this sometimes tinged with pale grayish brown); wings blackish, conspicuously banded and spotted with pale grayish brown and whitish, the spots on outer webs of primaries, primary coverts, and alula, decidedly white or whitish; a broad superciliary stripe of white; a broad postocular stripe of black; lores grayish; sides of head (below lores and black postocular stripe) and under parts dull white, the flanks and anal region tinged with pale buffy grayish brown; under parts, except chin and throat, more or less speckled or flecked with dusky;^d under tail-coverts barred (usually irregularly) with black; bill black or dusky, the mandible paler basally, especially on under side; iris red;^e legs and feet horn color (in dried skins).

^a Six specimens.

^b Five specimens.

^c Nelson, Auk, xiv, 1897, 70.

^d There is usually a more or less distinct trace of a black submalar streak; occasionally this is quite distinct.

^e Dr. C. Sartorius, manuscript.

Young.—Essentially like adults, but upper parts duller in color, with lighter markings less conspicuous; black of pileum duller, more slaty; back, scapulars, and rump mixed dusky and dull brown, the streaks dull brownish buff (indistinct on rump); wing-bands buffy brown or cinnamon-brown; tail-coverts very indistinctly barred; superciliary stripe pale buffy.

Adult male.—Length (skins), 164–174 (166.4); wing, 70–77 (73.7); tail, 64–70 (67); exposed culmen, 20–23 (22.2); tarsus, 24–26.5 (24.9); middle toe, 17–18 (17.4).^a

Adult female.—Length (skins), 148–160 (156.3); wing, 67–69 (67.9); tail, 58–65 (61.3); exposed culmen, 20.5–21 (20.9); tarsus, 22–23 (22.9); middle toe, 16–16.5 (16.1).^b

Southeastern Mexico, in States of Vera Cruz (Mirador; Jalapa; Carrizal; Antigua; Paso del Toro; Chichicaxtla), Puebla (Rinconada), and Oaxaca (Juquila; Playa Vicente).

Campylorhynchus rufinucha LAFRESNAYE, Rev. Zool., viii, 1845, 339 (Mexico).—BAIRD, Review Am. Birds, 1864, 105, part (Mirador, Vera Cruz).—SALVIN and GODMAN, Ibis, 1889, 234 (Vera Cruz, Vera Cruz; crit.).—LANTZ, Trans. Kansas Ac. Sci. for 1896–97 (1899), 224 (Rinconada, Puebla).

[*Campylorhynchus*] *rufinucha* GRAY, Hand-list, i, 1869, 192, no. 2845.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 5.

Picolaptes rufinucha LESSON, Descr. Mamm. et Ois., 1847, 285 (Vera Cruz).

Campylorhynchus capistratus (not *Picolaptes capistrata* LESSON) SCLATER, Proc. Zool. Soc. Lond., 1859, 363 (Jalapa, Vera Cruz), 371 (Juquila and Playa Vicente, Oaxaca).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 64, part (Mexican localities).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 191, part.

HELEODYTES HUMILIS (Sclater).

SCLATER'S CACTUS WREN.

Similar to *H. rufinucha*, but smaller; chestnut of hindneck more extended, invading the pileum (sometimes covering whole pileum). the latter never black, but with center of feathers dusky,^c postocular stripe chestnut-brown instead of black; middle rectrices more broadly and conspicuously barred with dusky, and under parts usually immaculate.^d

^a Nine specimens.

^b Seven specimens.

^c In fresh autumnal and winter plumage the chestnut margins to the feathers of the pileum are broader, greatly reducing (sometimes almost concealing) the dusky centers; in midsummer they become worn away, the pileum then being dusky or blackish, but always showing more or less distinct chestnut or rusty-brown margins to the feathers.

^d Occasional specimens show more or less speckling on sides and flanks, or on the latter alone. In *H. rufinucha* the amount of speckling on the under parts is exceedingly variable, sometimes but little greater than in certain specimens of *H. humilis*. One specimen of *H. humilis*, from El Limon, Guerrero, has the breast distinctly speckled.

Adult male.—Length (skins), 142–167 (155.2); wing, 64–70 (67.4); tail, 53.5–63 (58); exposed culmen, 17.5–21.5 (19.8); tarsus, 21–24 (22.7); middle toe, 14.5–17 (15.8).^a

Adult female.—Length (skins), 137–159 (146); wing, 60–66 (62.9); tail, 50–60 (54.3); exposed culmen, 17–20 (18.3); tarsus, 20–23.5 (21.8); middle toe, 14–16 (14.9).^b

Southwestern Mexico, in States of Oaxaca (Tehuantepec; Santa Efígenia; Juchitan), Guerrero (Acapulco; Papayo; Rio Balsas; Mexcala; El Limon; El Rincon; Dos Caminos, Apipilulca; Acahuitzotla), Michoacan (La Salada), and Colima (Rio de la Armeria).

Campylorhynchus humilis SCLATER, Proc. Ac. Nat. Sci. Phila., viii, 1856, 263 (Mazatlan, Sinaloa; coll. Acad. Nat. Sci. Phila.).—BAIRD, Review Am. Birds, 1864, 107, part (Colima, "Orizaba," Vera Cruz).—SUMICHRIST, Mem. Bost. Soc. N. H., i, 1869, 545 (Juchitan, Tehuantepec).—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 267 (Mazatlan; Colima).—LAWRENCE, Bull. U. S. Nat. Mus., no. 4, 1876, 13 (Santa Efígenia and Tehuantepec City, Oaxaca).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 65 (San Juan del Rio, etc.).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 192.

[*Campylorhynchus*] *humilis* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 5.

Heleodytes humilis rufus NELSON, Auk, xiv, Jan., 1897, 69 (Acahuitzotla, Guerrero; coll. U. S. Nat. Mus.).

^a Twenty-four specimens.

^b Seventeen specimens.

Specimens from different localities compare in average measurements as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Seven adult males from Oaxaca (Tehuantepec and Santa Efígenia)	67.8	59.1	19.6	23.4	15.9
Nine adult males from Guerrero (Acapulco, Papayo, etc)...	67	56.8	19.7	22.2	15.9
Five adult males from type locality of <i>H. humilis rufus</i> Nelson	68.6	57.8	20.3	22.6	16.2
Three adult males from Michoacan (Rio Salada)	66.2	59	19.5	23	15
FEMALES.					
Four adult females from Oaxaca (Tehuantepec and Santa Efígenia)	63.5	55.2	17.9	22.6	14.9
Nine adult females from Guerrero (Acapulco, etc)	62.4	53.8	18	21.2	15.1
Three adult females from type locality of <i>H. humilis rufus</i> Nelson	63.7	55	19.3	22.2	15
One adult female from Michoacan (Rio Salada)	62.9	54.3	18.3	21.8	14.9

I am not able to discern any difference of coloration, except that those from Oaxaca seem to be very slightly paler than the others. The difference is so very slight, however, that I would not separate them on this character alone.

The type of *H. humilis rufus* Nelson is in very fresh plumage, and is more uniform in the coloration of the upper parts than any other among the fifty-one specimens examined; but the seven other specimens from the same locality are quite indistinguishable from those from other parts of Guerrero, Michoacan, and Colima.

HELEODYTES ZONATUS ZONATUS (Lesson).

BANDED CACTUS WREN.

Adults (sexes alike).—Feathers of pileum black centrally, broadly margined with pale brownish gray (smoke gray to buffy drab-gray), producing a more or less distinctly squamate appearance; hindneck broadly streaked with black and buffy white or very pale buff; back and scapulars broadly barred or banded with black and buffy white or pale tawny-buff, sometimes strongly suffused with the latter; rump and upper tail-coverts more or less pronouncedly tawny, more or less distinctly barred with black or dusky; middle rectrices pale grayish brown, with more or less distinct indications of black or dusky broad spots along or near margin, sometimes distinctly (though not continuously) banded, rarely immaculate; remaining rectrices black, their outer webs with distinct broad spots of pale grayish buff, or dull whitish, forming regular bands across the tail (interrupted by middle rectrices), their inner webs with corresponding spots, decreasing in size and distinctness toward the middle rectrices; wings black, narrowly banded with white or buffy, the black interspaces at least twice as wide as the whitish or buffy bands; a superciliary stripe of white or buffy white; a more or less distinct narrow postocular streak of dusky, or a broader one of light grayish brown streaked with black; suborbital, auricular, and malar regions white, the last narrowly streaked with black, the rest (especially malar region) usually with narrow squamate markings of the same; chin, throat, chest, and breast white, passing into dull tawny-ochraceous on abdomen, sides, flanks, anal region, and under tail-coverts; throat, chest, and breast marked with rounded, ovate, cordate, or broadly guttate spots of black, the remaining (tawny) under parts usually immaculate, but occasionally with a few black spots or other markings on flanks, abdomen, or under tail-coverts; maxilla blackish or dusky horn color, with paler tomia; mandible dull buffy whitish or very pale buffy brownish (in dried skins); iris brown,^a cinnamon-red,^b or gray; ^c legs and feet pale yellowish horn color (in dried skins).

Young.—Very different from adults; pileum uniform black; back and scapulars dull black marked with streaks or broad guttate spots of light brown (raw umber to wood brown), the rump and upper tail-coverts uniformly of the latter color; wings and tail as in adults but the paler bands light brown or cinnamon instead of whitish; superciliary stripe dull brownish buff or pale isabella color; a black postocular streak; sides of head below eye and postocular streak, chin, throat, and chest, dull brownish white, sometimes mottled with sooty grayish; rest of under parts plain dull light cinnamon.

^a Dr. C. Sartorius, manuscript. ^b Prof. F. Sumichrast. ^c Rev. H. Th. Heyde, manuscript.

Adult male.—Length (skin), 188–201 (195.6); wing, 80–89 (83.1); tail, 81–92 (86.2); exposed culmen, 20–22.5 (21.4); tarsus, 25–28 (26.3); middle toe, 17–19 (17.8).^a

Adult female.—Length (skins), 172–198 (188.1); wing, 75–85 (80.7); tail, 79–86 (82.9); exposed culmen, 19.5–23 (20.7); tarsus, 25–26.5 (25.9); middle toe, 16–18 (17.1).^a

Southeastern Mexico, in States of Vera Cruz (Cordova; Mirador; Jalapa; Motzorongo; Orizaba; Papantla; San Andres Tuxtla; Paso Nuevo; Misantla), Puebla (Mazatiopam; Metlaltoyuca; Rinconada), Oaxaca (Playa Vicente), and Chiapas (San Cristobal; San Vicente), and southward over parts of Guatemala (Dueñas; Choctum; Alotepeque; Volcan de Fuego; Tactic) to Honduras.^b

Picolaptes zonatus LESSON, Cent. Zool., Jan., 1831, 210, pl. 70 ("California").—LAFRESNAYE, Rev. Zool., 1846, 94.

C[ampylorhynchus] zonatus GRAY, Gen. Birds, i, 1847, 159.—CABANIS, Mus. Hein., i, 1850, 80 (Jalapa, Vera Cruz).—SALVIN and GODMAN, Ibis, 1889, 235, in text (Misantla, Vera Cruz).

[*Campylorhynchus*] *zonatus* BONAPARTE, Consp. Av., i, 1850, 223.—GRAY, Handlist, i, 1869, 192, no. 2636.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 5.

Campylorhynchus zonatus SCLATER, Proc. Ac. Nat. Sci. Phila., viii, 1856, 264 (Vera Cruz, Mexico); Proc. Zool. Soc. Lond., 1856, 290 (Cordova, Vera Cruz); 1859, 363 (Cordova); Cat. Am. Birds, 1862, 17 (Guatemala; Mexico).—SALVIN and SCLATER, Ibis, 1860, 29 (Dueñas, Guatemala; habits, descr. nest).—BAIRD, Review Am. Birds, 1864, 104 (Mirador, Vera Cruz; Alotepeque and Choctum, Guatemala).—SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 545 (hot and temp. regions, Vera Cruz).—BOUCARD, Ois. Rec. Guat., 1878,

^aTen specimens from States of Vera Cruz and Puebla.

Although a fairly large series of specimens from Guatemala have been examined, only one specimen in the lot has the sex determined; this, together with examples from several other localities, compares in measurements with the series of twenty specimens from Vera Cruz and Puebla (one male and two females only from the latter State), as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Ten adult males from Vera Cruz (9) and Puebla (1).....	83.1	86.2	21.4	26.3	17.8
One adult male from Chiapas (San Cristobal).....	88	90	23	26	18
One adult male from Guatemala (Togahay, Quiché).....	73	76	.....	26	16
Two adult males (<i>H. z. costaricensis</i>) from Costa Rica.....	77	78.5	21.5	24	17.5
FEMALES.					
Ten adult females from Vera Cruz (8) and Puebla (2).....	80.7	82.9	20.7	25.9	17.1
One adult female from Chiapas (San Vicente).....	78	77	22	27	17
Three adult females (<i>H. z. costaricensis</i>) from Costa Rica...	69.5	64.8	19	21.8	15.3

Although the particular Guatemalan specimen measured is smaller even than specimens from Costa Rica (it is probably a female and not a male), I am not able to discover any differences of color between the rather large Guatemalan series and the still larger one from Mexico.

^b According to Count von Berlepsch, Auk, v, 1888, 449.

29.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 68, part (Mexican and Guatemalan localities and references).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 195, part.—SALVIN, Cat. Strickland Coll., 1882, 75 (Guatemala).—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 135 (Mazatiopam, Puebla; Jalapa, Vera Cruz).—CHAPMAN, Bull. Am. Mus. N. H., x, 1898, 22 (Jalapa; habits; song).—LANTZ, Trans. Kansas Ac. Sci. for 1896-97 (1899), 224 (Rinconada, Puebla).

Campylorhynchus nigriceps SCLATER, Proc. Zool. Soc. Lond., 1860, 461 (Jalapa, Vera Cruz, Mexico; coll. P. L. Sclater); Cat. Am. Birds, 1862, 18 (Jalapa and Orizaba, Vera Cruz).—BAIRD, Review Am. Birds, 1864, 109.

[*Campylorhynchus*] *nigriceps* GRAY, Hand-list, i, 1869, 193, no. 2654.

HELEODYTES ZONATUS COSTARICENSIS (Berlepsch).

COSTA RICAN CACTUS WREN.

Similar to *H. z. zonatus*, but smaller and darker (especially the tawny of posterior under parts), and with black spots of chest, etc., relatively larger.

Adult male.—Length (skins), 174-177 (175.5); wing, 74-77 (76); tail, 69.5-74 (72.2); exposed culmen, 18.5-22 (20.5); tarsus, 23-25 (23.7); middle toe, 17-18 (17.3).^a

Adult female.—Length (skins), 153-157 (155.7); wing, 69-70 (69.5); tail, 64.5-65 (64.8); exposed culmen, 18-20 (19); tarsus, 21-22.5 (21.8); middle toe, 15-16 (15.3).^b

Highlands of Costa Rica (Parita; Turrialba; Cervantes; Tucurrique; Angostura; Cartago; Naranjo de Cartago; Jiménez).

Campylorhynchus zonatus (not *Picolaptes zonatus* Lafresnaye) LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 92 (Turrialba, Cervantes, and Tucurrique, Costa Rica).—BOUCARD, Proc. Zool. Soc. Lond., 1878, 51 (San Mateo, Costa Rica; habits).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 68, part (Costa Rican localities and references).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 195, part (Parita, Costa Rica).—ZELEDON, Cat. Aves de Costa Rica, 1882, 3; Proc. U. S. Nat. Mus., viii, 1885, 105; Anales Mus. Nac. Costa Rica, i, 1887, 105 (Jiménez, Naranjo de Cartago, Cartago, and Turrialba, Costa Rica).

Campylorhynchus zonatus costaricensis BERLEPSCH, Auk, v, Oct., 1888, 450 (Costa Rica; coll. Count von Berlepsch).

HELEODYTES ZONATUS RESTRICTUS Nelson.

TABASCO CACTUS WREN.

Similar to *H. z. zonatus*, but under parts much more numerous and extensively spotted with black, the spots extending, more or less, over the tawny posterior portions, in extreme examples the sides, flanks, and under tail-coverts being heavily barred or transversely spotted with black.

Adult male.—Length (skins), 198-217 (205.7); wing, 81-91 (88.5); tail, 82-93 (88.5); exposed culmen, 23-24 (23.7); tarsus, 26-28 (27); middle toe, 19-20 (19.2).^b

^a Three specimens.

^b Four specimens.

Adult female.—Length (skins), 189–198 (190); wing, 85–87 (86); tail, 84–91 (88); exposed culmen, 22–24 (22.7); tarsus, 27–28 (27.5); middle toe, 17–18 (17.5).^a

Extreme southeastern Mexico, in States of Oaxaca (Guichicovi) and Tabasco (Frontera; Teapa), and adjacent portion of eastern Guatemala.^b

Campylorhynchus zonatus (not *Picolaptes zonatus* Lafresnaye) LAWRENCE, Bull.

U. S. Nat. Mus., no. 4, 1876, 13 (Guichicovi, Oaxaca).

C[ampylorhynchus] zonatus SALVIN and GODMAN, Ibis, 1889, 235, part, in text (Teapa, Tabasco).

Heleodytes zonatus restrictus NELSON, Auk, xviii, Jan., 1901, 49 (Frontera, Tabasco; coll. U. S. Nat. Mus.).

HELEODYTES MEGALOPTERUS (Lafresnaye).

HUITZILAC CACTUS WREN.

Adults (sexes alike).—Pileum and nape dull black or dusky, the feathers margined terminally or tipped with pale grayish brown or buffy brown (broccoli brown, pale drab, or pale hair brown), producing distinct streaks or squamate markings;^c hindneck broadly streaked with black and white; back, scapulars, and upper rump broadly banded with dull black and pale grayish buff or dull whitish; lower rump and upper tail-coverts pale buffy grayish brown, more narrowly banded or barred with blackish; middle pair of rectrices with inner web gray, more or less banded or transversely spotted (often indistinctly) toward base or margin with blackish; outer web of middle rectrices and both webs of all other rectrices black, broadly banded with white, this not reaching the shaft, and more or less tinged with pale grayish brown, especially on inner rectrices; wings blackish, broadly barred or banded with dull white; a superciliary stripe of dull buffy white; a narrow postocular streak of blackish; lores grayish; suborbital, malar, and auricular regions white or pale buffy, narrowly streaked with dusky; under parts dull white, more or less strongly tinged with brownish buff posteriorly, the throat, chest, breast, and abdomen marked with large, mostly roundish, spots of dull black or dusky, the flanks broadly barred or banded with the same, the under tail-coverts broadly barred or spotted; maxilla black or dusky, with paler tomia;

^a Four specimens.

^b There is a typical specimen, said to be from Guatemala (it has the usual "make" of skins from that country), but without definite locality, in the collection of the American Museum of Natural History.

^c In fresh autumnal or early winter plumage the pale buffy, grayish brown color is more extended, the black showing as partly concealed central spots or broad streaks; in worn spring or summer plumage this paler color is much reduced in extent, and the general effect more streaked. In addition to the terminal or external margin of pale brownish the feathers often have a concealed spot or bar of the same color. It may be further remarked that the color is more grayish anteriorly (on the forehead), more buffy posteriorly (on the nape).

mandible brownish white or pale brownish buff (in dried skins); legs and feet horn color (in dried skins).

Young.—Very different in coloration from adults; pileum and nape plain slaty black; back and scapulars dusky, with large more or less guttate spots of brownish buff or pale wood brown; rump and upper tail-coverts plain light buffy grayish brown; lighter bands of wings and tail brownish buff or pale wood brown instead of whitish; superciliary stripe brownish buff, becoming very narrow (sometimes obsolete) anteriorly; throat, chest, and breast immaculate, the last two strongly suffused with dull brownish buff; dusky bands on flanks and under tail-coverts much less distinct than in adults.

Adult male.—Length (skins), 181–193 (186.9); wings, 84–95 (91.5); tail, 80–89 (85.5); exposed culmen, 19.5–25 (22.1); tarsus, 27–28.5 (27.4); middle toe, 16–19 (17.4).^a

Adult female.—Length (skins), 171–187 (179.5); wing, 83–89.5 (85.9); tail, 77–84.5 (78.9); exposed culmen, 18–20 (18.7); tarsus, 26–27.5 (26.7); middle toe, 16–17.5 (16.4).^b

Southwestern portion of Mexican plateau, in States of Morelos (Huitzilac), Michoacan (Patamban), and Mexico (Rio Frio; Mount Ixtaccihuatl; Ajusco; near City of Mexico).

Campylorhynchus megalopterus LAFRESNAYE, Rev. Zool., viii, 1845, 339 (Mexico: type now in coll. Boston Soc. Nat. Hist.; see Ridgway, Proc. Bost. Soc. Nat. Hist., xxiii, 1888, 385).^c—DES MURS, Icon. Orn., 1845–49, pl. 54.—BONAPARTE, Consp. Av. i, 1850, 223.

[*Campylorhynchus*] *megalopterus* GRAY, Gen. Birds, i, 1847, 159.

[*Campylorhynchus*] *megalopterus* GRAY, Hand-list, i, 1869, 192, no. 2639.

Heleodytes alticolus NELSON, Auk, xiv, Jan., 1897, 68 (Huitzilac, Morelos; coll. U. S. Nat. Mus.).

HELEODYTES NELSONI Ridgway.

GRAY CACTUS WREN.

Similar to *H. megalopterus*, but smaller, paler, and browner, with spots on breast, etc., grayish brown instead of blackish.

Adults (sexes alike).—Pileum light grayish brown (broccoli brown

^a Nine specimens.

^b Eight specimens.

^c At the time when I examined Lafresnaye's types of this species no other specimens were extant, and the series of the allied form (*H. nelsoni*) was then too small for satisfactory comparison. My conclusion that Lafresnaye's bird and that called *C. megalopterus* by Dr. Selater and others (later erroneously identified by Professor Baird with *C. pallescens* Lafresnaye) represented the same species proves, in the light of additional material, to have been a mistake. Mr. Nelson, recognizing the distinctness of the two forms, and accepting my identification of *C. megalopterus* with the paler bird of the eastern side of the plateau, was thus unfortunately led to describe the wrong bird as new, his *Heleodytes alticolus* and Lafresnaye's *Campylorhynchus megalopterus* unquestionably being the same form.

to hair brown), the feathers with a central V-shaped or hastate spot of dusky; hindneck broadly streaked with dusky and dull white or brownish white; back and scapulars broadly banded with dusky and brownish white, the whitish bands more or less suffused with pale buffy brown; rump and upper tail-coverts pale buffy grayish brown or dull grayish buff, broadly barred or banded with dusky, the bars narrower and less distinct on rump; inner web of middle rectrices light brownish gray with broad dusky spots (more or less distinct) near margin; their outer webs light brownish gray broadly barred with black, the grayish interspaces becoming paler and more buffy exteriorly, especially toward base of tail; both webs of remaining rectrices dull blackish or dusky, with broad transverse spots of dull buffy white along margins, those on outer webs reaching nearly or quite to the shaft; wings dull blackish, broadly barred or banded with pale brownish buff; a superciliary stripe of dull white; a narrow dusky postocular stripe; lores pale dull grayish; suborbital, malar, and auricular regions dull white, more or less streaked with dusky; under parts dull white, passing into pale brownish buffy on abdomen, anal region, under tail-coverts, and flanks, the more anterior portions sometimes strongly suffused with dull pale buff, especially laterally; throat, chest, and breast marked with large roundish or transversely cordate spots of grayish brown, these becoming more decidedly transverse on sides of breast and passing into broad transverse bars or bands of a darker hue (dusky) on sides and flanks; abdomen with smaller transverse spots or bars; under tail-coverts broadly barred with dusky; maxilla blackish or dusky, with paler tomia; mandible dull whitish or buffy (in dried skins); legs and feet pale brownish (in dried skins).

Young.—"Differs from the adult in having the head [*i. e.* the pileum] uniform black, and the plumage spotted instead of barred, the back being varied with large ovate spots of brownish white or ochraceous brown; eyebrow and sides of face pale fulvous brown, the whole of the under surface also tinged with this shade; throat dull white, unspotted; the breast and under parts barred with blackish brown, with a few blackish spots on the breast."^a

Adult male.—Length (skins), 173–178 (176.3); wing, 88–90 (88.6); tail, 70–80 (73.6); exposed culmen, 20; tarsus, 27–28 (27.3); middle toe, 18.^b

Adult female.—Length (skins), 171–180 (175.5); wing, 85–88 (86.5); tail, 74–77 (75.5); exposed culmen, 19; tarsus, 28; middle toe, 18–19 (18.5).^c

Southeastern portion of Mexican plateau, in States of Vera Cruz.

^a Sharpe, Cat. Birds Brit. Mus., vi, 1882, 200.

^b Three specimens.

^c Two specimens.

(Orizaba; Jalapa;^a Jico), and Oaxaca (Llano Verde; La Parada; Mount Zempoaltepec). Mexico (Valley of Mexico)?^b

Campylorhynchus megalopterus (not of Lafresnaye) SCLATER, Proc. Zool. Soc. Lond., 1858, 298 (La Parada, Oaxaca); 1859, 363 ("Jalapa,"^a Vera Cruz, 371 (Llano Verde, Oaxaca); Cat. Am. Birds, 1862, 17 (s. Mexico).—SHAFF. Cat. Birds Brit. Mus., vi, 1881, 199 (La Parada, Oaxaca).

Campylorhynchus pallescens (not of Lafresnaye) BAIRD, Review Am. Birds, 1861, 101 (Orizaba; "Jalapa"^a).—SUMICHRIST, Mem. Bost. Soc. N. H., i, 1869, 54 (alpine reg. Orizaba, Vera Cruz).—SALVIN and GODMAN, Biol. Centr.-Am. Aves, i, 1880, 69.

[*Campylorhynchus*] *pallescens* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 5.
[*Campylorhynchus*] *pallescens* SALVIN and GODMAN, Ibis, 1889, 235, in text ("hills surrounding the Valley of Mexico").

Heleodytes nelsoni RIDGWAY, Proc. Biol. Soc. Wash., xvi, Sept. 30, 1903, 111 (Jalapa,^a Vera Cruz, s. e. Mexico; coll. U. S. Nat. Mus.).

HELEODYTES GUTTATUS (Gould).

YUCATAN CACTUS WREN.

Most like *H. brunneicapillus affinis*, the under parts very similar. but under tail-coverts barred, instead of spotted, with black; pileum grayish brown, with feathers dusky centrally; general color of back much more grayish, the black streaks much broader; lateral rectrices broadly tipped with dull white, but not barred with white, except sometimes (on outermost rectrix only) toward end.

Adults (*sexes alike*).—Pileum and hindneck grayish brown, each feather dusky centrally, producing a squamate appearance; general color of back, scapulars, and rump grayish brown or brownish gray, this broken by conspicuous, sharply defined broad white streaks, each margined along each side by a broad black streak; upper tail-coverts barred with black or dusky; middle rectrices pale grayish brown or brownish gray, broadly barred or banded with dusky; other rectrices dusky, broadly tipped with white, the white terminal area becoming pale brownish gray at tip, often forming a distinct narrow terminal band; outer web of lateral rectrix broadly barred or transversely spotted with white, these bars or spots becoming more grayish basally; outer webs of other rectrices broadly barred with black and pale brownish gray; wings conspicuously barred and spotted with brownish gray, white, and blackish; a broad superciliary stripe of white; lores grayish; a broad postocular streak of grayish brown; rest of sides of head, with under parts, white, the flanks and anal region tinged with brownish buff; auricular region finely (sometimes obsoletely)

^a Professor Sumichrast is of the opinion that Jalapa, as a locality for this species, is an error, the specimens so labeled probably coming from a higher altitude.

^b A specimen said to be from the Valley of Mexico is precisely like Vera Cruz examples.

streaked with brownish gray; a more or less distinct submalar streak of black; throat and chest with broad ovate streaks or oblong spots of black, the breast and abdomen with linear or elongate-guttate streaks of the same; sides, flanks, and under tail-coverts barred with blackish; maxilla brownish black or dusky with paler tomia; mandible pale horn color (in dried skins); legs and feet horn color.

Young.—Essentially like adults, but back streaked with pale brownish buff on a wholly dusky ground; paler markings of wings and tail more buffy; postocular streak blackish, and underparts more sparsely spotted, and without distinct bars on flanks.

Adult male.—Length (skins), 172–198 (181); wing, 69–77 (74.1); tail, 64.5–77 (71.1); exposed culmen, 22–29 (25); tarsus, 25–27 (25.9); middle toe, 17–20 (18.5)^a

Adult female.—Length (skins), 165–188 (175); wing, 70.5–72.5 (71.7); tail, 68–72.5 (70.3); exposed culmen, 22–27.5 (24.1); tarsus, 24–27 (25.4); middle toe, 18–19 (18.2).^b

Peninsula of Yucatan (Progreso; Merida; Temax; Celestin).

Thryothorus guttatus GOULD, Proc. Zool. Soc. Lond., 1836, 89 (Mexico; coll. J. Gould).

Campylorhynchus guttatus LAFRESNAYE, Rev. Zool., ix., 1846, 94.—BAIRD, Review Am. Birds, 1864, 108.—LAWRENCE, Ann. Lyc. N. Y., ix, 1869, 199 (Progreso and Celestin, Yucatan).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 68.—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 202.

C[campylorhynchus] guttatus GRAY, Gen. Birds, i, 1847, 159.

[*Campylorhynchus*] *guttatus* BONAPARTE, Consp. Av., i, 1850, 223.—GRAY, Handlist, i, 1869, 192, no. 2649.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 5.

HELEODYTES BRUNNEICAPILLUS BRUNNEICAPILLUS (Lafresnaye).

GUAYMAS CACTUS WREN.

Adults (sexes alike).—Pileum and hindneck plain deep brown (varying from sepia to vandyke), the feathers slightly darker centrally; back, scapulars, and rump paler and more grayish brown, more or less conspicuously variegated with white, usually in the form of guttate, cuneate, or linear streaks, these edged, at least in part, with dusky;^c upper tail-coverts and middle rectrices brownish gray, rather broadly, but more or less irregularly, barred with dusky, these dusky bars sometimes much broken and confused; tail (except

^a Nine specimens.

^b Eight specimens.

^c There is a very great range of individual variation in both the general color of the back, which varies from almost prouts brown to hair brown, as well as in the form and extent of the whitish markings. The latter are often in the form of very conspicuous broad linear streaks; again they are present only as small guttate or drop-shaped spots. According to the material before me, these extreme variations are shown among specimens from any locality.

middle rectrices) mostly black, the lateral rectrices broadly barred with white, the rest crossed near tip by a broad subterminal bar or band of white; the outer webs of all except outermost pair broadly barred or banded basally with brownish gray;^a wing-coverts and tertials mainly grayish spotted with dusky and also more or less varied with whitish bars or streaks, especially on smaller coverts; alula, primary coverts, primaries, and secondaries (except tertials) dusky, their outer webs conspicuously spotted with white or brownish white; a broad, conspicuous, and sharply defined superciliary stripe of white, usually margined above by a narrow line of black; a broad brown postocular stripe occupying upper portion of auricular region, but extending beyond to side of neck; lores grayish; rest of sides of head white, or brownish white, the lower part of the auricular region streaked with black or dusky; chin, throat, and chest white, more or less heavily spotted (rarely broadly streaked) with black; breast white or buffy white, deepening into ochraceous-buff or cinnamon-buff on flanks, abdomen, and anal region, the whole surface marked with guttate or elliptical streaks or spots of black, these larger and broader (roundish or cordate) on flanks; under tail-coverts white or buffy with large cordate or roundish spots of black; maxilla dusky horn color with paler tomia; mandible light horn color (in dried skins); iris red; legs and feet light horn color (in dried skins).

Young.—Essentially like adults, but paler markings of upper parts less sharply defined, pale brownish buff or dull brownish white; pileum and hindneck duller brown; outer webs of primaries and secondaries spotted with pinkish buff instead of white, and blackish spots on throat and chest much smaller, the former sometimes almost immaculate.

Adult male.—Length (skins), 174–198 (187); wing, 80–87.5 (84.3); tail, 73–83.5 (78.9); exposed culmen, 20–23 (21.4); tarsus, 26.5–29 (27.5); middle toe, 17–19.5 (18.6).^b

Adult female.—Length (skins), 173–189 (180.9); wing, 77–83.5 (80.3); tail, 74–80 (75.4); exposed culmen, 18.5–23 (20.1); tarsus, 25–28 (26.3); middle toe, 17–19 (18.2).^b

Coast district of southern Sonora (Alamos; Batamotal; Camoa; Guaymas).

^a The white bars or bands on the outermost rectrices are interrupted at the shaft, and usually those on opposite webs are alternate; that is, each white bar is opposite a black one on the opposite web. Sometimes there is only one distinct white bar (or transverse spot) on the inner web of the lateral rectrix, this near the end; again, the inner web of the second rectrix may show several more or less well-developed white bars. In fact, there is as great an amount of individual variation, without regard to locality, in the barring of the lateral rectrices as in the color and markings of the back.

^b Ten specimens.

- Picolaptes brunneicapillus* LAFRESNAYE, Mag. de Zool., 1835, 61, pl. 47 ("California;" type now in coll. Boston Soc. Nat. Hist. ^a).—HEERMANN, Journ. Ac. Nat. Sci. Phila., ii, 1853, 263 (Guaymas, Sonora; habits; notes; descr. nest and eggs).
- Campylorhynchus brunneicapillus* LAFRESNAYE, Rev. Zool., ix, 1846, 94.—SCLATER, Proc. Ac. Nat. Sci. Phila., viii, 1856, 264, part (crit.); Cat. Am. Birds, 1862, 17, part (in synonymy).—COUES, Birds Col. Val., 1878, 156, part (in synonymy, etc.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 67, part (Guaymas).—BELDING, Proc. U. S. Nat. Mus., vi, 1883, 543 (Guaymas).—LANTZ, Trans. Kansas Ac. Sci. for 1896-97 (1899), 223 (Florida, Sonora or Sinaloa. ^b)
- [*Campylorhynchus*] *brunneicapillus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 5, part.
- C[*ampylorhynchus*] *brunneicapillus* RIDGWAY, Man. N. Am. Birds, 1887, 547, part (Guaymas).
- H[*eleodytes*] *brunneicapillus* RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 547, part (Guaymas).

HELEODYTES BRUNNEICAPILLUS BRYANTI Anthony.

BRYANT'S CACTUS WREN.

Similar to *H. b. brunneicapillus*, but darker and browner above, with the back, scapulars, and rump always conspicuously streaked with white (as in *H. b. affinis*), the white streaks margined laterally by a narrower streak of black; three lateral rectrices distinctly barred with white (as in *H. b. affinis*); under parts more uniformly marked with black, the black spots on throat and chest usually either larger or more numerous, those of breast, abdomen, sides, etc., larger and broader (broadly guttate or sometimes almost circular); posterior under parts very slightly tinged with buff.

Adult male.—Length (skins), 182-193 (187); wing, 80-88 (85.2); tail, 77-79 (77.7); exposed culmen, 23-24 (23.5); tarsus, 28-29.5 (28.8); middle toe, 18.5-19 (18.8).^c

Adult female.—Length (skin), 178; wing, 81; tail, 76; exposed culmen, 24; tarsus, 27; middle toe, 19.^d

Coast district of San Diego County, California and northern Lower California, as far southward as San Quentin;^e San Pedro Martir Mountains?

^a See Ridgway, Proc. Bost. Soc. N. H., xxiii, 1888, 383 (crit.). I have again carefully examined and compared the type with an extensive series of specimens from various localities, and am more than ever convinced that it came from Guaymas, Sonora, or some locality not far distant. It agrees minutely in measurements and coloration with specimens from southern Sonora, and in both respects is very different from all examples from any other part of the country. It certainly did not come from California.

^b I have not been able to find the locality mentioned on any map.

^c Three specimens; two (one the type) from San Telmo, the other from San Diego.

^d One specimen, from San Telmo.

^e From San Quentin to San Fernando varying toward *H. b. affinis*, specimens from the latter locality being, according to Anthony (Auk, xi, 1894, 214), "rather nearer to *affinis* than *bryanti*."

Heleodytes brunneicapillus bryanti, ANTHONY, Auk, xi, July, 1894, 211, 212 (San Telmo, Lower California; coll. A. W. Anthony); xii, 1895, 142 (San Fernando, Lower California; habits; notes).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 2d ed., 1895, 166, no. 713a.—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 609.—MEARNS, Auk, xix, 1902, 143, 145 (diagnosis; range).

H[eleodytes] b[runneicapillus] bryanti BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 443.

Campylorhynchus brunneicapillus (not of Lafresnaye) BAIRD, Review Am. Birds, 1864, 99, part (San Diego, California).—COOPER, Orn. Cal., i, 1870, 61, part (San Diego).—COUES, Check List, 1873, no. 43, part; 2d ed., 1882, no. 63, part; Birds Col. Val., 1878, 156, part (San Diego).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 132, part (San Diego).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 56, part.—EMERSON, Bull. Cal. Ac. Sci., no. 7, 1887, 430 (Poway Valley, San Diego Co., California).

[*Campylorhynchus*] *brunneicapillus* COUES, Key N. Am. Birds, 1872, 85, part.

[*Campylorhynchus*] *brunneicapillus* COUES, Key N. Am. Birds, 2d ed., 1884, 275, part.—RIDGWAY, Man. N. Am. Birds, 1887, 547, part.

(?) *Campylorhynchus affinis* (not of Xantus?) ANTHONY, Zoe, iv, 1893, 245 (San Pedro Martir Mts., Lower California).

HELEODYTES BRUNNEICAPILLUS AFFINIS (Xantus).

ST. LUCAS CAOTUS WREN.

Most like *H. b. bryanti* but much paler, with under parts less heavily and more sparsely marked with black; color of pileum and hindneck more reddish brown (mummy brown to chestnut-brown), the feathers often with paler terminal small spots or streaks; all the rectrices; except middle pair, with distinct white bars on both webs; under parts more purely white (distinctly tinged with buff posteriorly only in fresh autumnal plumage), the black marking on lower parts of body broadly guttate, those on throat and chest but little larger (never large and confluent as is often the case in other subspecies), but of different (irregular and variable) form.

Adult male.—Length (skins), 172–197 (182.8); wing, 80.5–88.5 (85.3); tail, 72–81 (77.5); exposed culmen, 21–24.5 (23.5); tarsus, 27.5–30 (29); middle toe, 18–21 (19.7).^a

Adult female.—Length (skins), 170–190 (184.5); wing, 76–88 (81); tail, 71–79 (74.9); exposed culmen, 22–24 (23.1); tarsus, 27–30 (28.4); middle toe, 18–22 (19.4).^b

Cape district of Lower California (Cape St. Lucas; San José del Cabo; La Paz; San Telmo Valley).

Campylorhynchus affinis XANTUS, Proc. Ac. Nat. Sci. Phila., 1859, 298 (Cape St. Lucas, Lower California; coll. U. S. Nat. Mus.).—BAIRD, Proc. Ac. Nat. Sci. Phila., 1859, 301, 303; Review Am. Birds, 1864, 100.—SCLATER, Cat. Am. Birds, 1862, 162 ("California.")—ELLIOT, Illustr. New and Unfig. Birds N. Am., i, 1869, pl. 4.—COOPER, Orn. Cal., 1870, 62 (Cape St. Lucas).—COUES, Check List, 1873, no. 44; 2d ed., 1882, no. 64; Birds Col. Val., 1878, 154, footnote.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 133, pl. 8, fig. 6.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 57.—BELDING, Proc.

^a Ten specimens.

^b Eight specimens.

U. S. Nat. Mus., v, 1883, 534 (Cape St. Lucas).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 714.—TOWNSEND (C. H.), Proc. U. S. Nat. Mus., xiii, 1890, 136 (Cape St. Lucas).—ANTHONY, Zoe, iv, 1893, 245 (San Telmo Valley, Lower California).

[*Campylorhynchus*] *affinis* COUES, Key N. Am. Birds, 1872, 85.

C[*ampylorhynchus*] *affinis* BAIRD, Proc. Ac. Nat. Sci. Phila., 1859, 304, footnote (diagnosis).—COUES, Key N. Am. Birds, 2d ed., 1884, 275.—RIDGWAY, Man. N. Am. Birds, 1887, 547.

Heleodytes affinis AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xi, Jan., 1894, 48.—ANTHONY, Auk, xi, July, 1894, 210.

H[*eleodytes*] *affinis* RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 547.

Heleodytes brunneicapillus affinis ANTHONY, Auk, xii, July, 1895, 280, in text (crit.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 2d ed., 1895, no. 713b; Auk, xiv, 1897, 131.—MEARNS, Auk, xix, 1902, 142, 144 (diagnosis; range).—BREWSTER, Bull. Mus. Comp. Zool., xli, 1902, 197 (variations of plumage; habits).

Campylorhynchus brunneicapillus (not *Picolaptes brunneicapillus* Lafresnaye) SHARPE, Cat. Birds Brit. Mus., vi, 1881, 197 (La Paz, Lower California).

HELEODYTES BRUNNEICAPILLUS OBSCURUS Nelson.

MEXICAN CACTUS WREN.

Similar to *H. b. brunneicapillus*, but whitish markings of upper parts less conspicuous, much more rare linear, the general color duller and more grayish.

Adult male.—Length (skins), 172–198 (186.2); wing, 82–90 (85.1); tail, 71.5–82 (76.4); exposed culmen, 19.5–25 (22.7); tarsus, 26–28 (27.2); middle toe, 17.5–20.5 (18.6).^a

Adult female.—Length (skins), 169–188 (180.7); wing, 77–84 (80.3); tail, 71.5–77 (74.1); exposed culmen, 20–24 (22.2); tarsus, 25–27 (26.1); middle toe, 16.5–18.5 (17.8).^b

Central portion of Mexican plateau, in States of Durango (Durango), Zacatecas (Valparaiso; San Juan Capistrano), Jalisco (La Barca; Guadalupe; Zacoalco; Huejuquilla), Guanajuato (Tupátaro), Mexico (Val-

^a Nineteen specimens.

^b Twelve specimens.

Specimens from different localities average, respectively, as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Ten adult males from Zacatecas, Hidalgo, and Jalisco	85.9	77.3	22.5	27.4	18.4
Two adult males from Guanajuato.....	82.7	71.7	21	26.2	18.2
Four adult males from San Luis Potosí	85	77.2	23.2	27.5	18.5
Three adult males from southern Tamaulipas	83.8	75.7	23.5	26.8	19.7
FEMALES.					
Seven adult females from Zacatecas, Hidalgo, and Jalisco..	80.9	74.9	22.1	25.9	17.7
Two adult females from San Luis Potosí	81.7	74	22	26.5	17.7
Three adult females from southern Tamaulipas	78	72.3	22.7	26.3	18

ley of Mexico), Hidalgo (Irolo; Tula), San Luis Potosi (Abasco; La Posada; San Luis Potosi), and southern Tamaulipas (Jaumave).

Campylorhynchus brunneicapillus (not of Lafresnaye) SCLATER, Proc. Ac. Nat. Sci. Phila., viii, 1856, 264, part (monogr.).—DUGÈS, La Nature, i, 1869, 12 (Guanajuato).—COUES, Birds Col. Val., 1878, 156, part (in synonymy and range).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 67, part (Guanajuato; Valley of Mexico).

[*Campylorhynchus*] *brunneicapillus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, i, part.

[*Campylorhynchus*] *brunneicapillus* RIDGWAY, Man. N. Am. Birds, 1887, 547, part (Guanajuato).

Heleodytes brunneicapillus JOUY, Proc. U. S. Nat. Mus., xvi, 1894, 776 (Abasco; San Luis Potosi; habits).—AMERICAN ORNITHOLOGISTS' UNION, Check List 2d ed., 1895, 295, no. 713, part (central Mexico).

II [*Heleodytes*] *brunneicapillus* RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 547, part (Guanajuato).

Heleodytes brunneicapillus obscurus NELSON, Proc. Biol. Soc. Wash., xii, Mar. 2, 1898, 58 (Tula, Hidalgo; coll. U. S. Nat. Mus.).—MEARNS, Auk, xix, 1902, 144, footnote.

HELEODYTES BRUNNEICAPILLUS COUESI (Sharpe).

CACTUS WREN.

Similar to *H. b. brunneicapillus*, but larger and with coloration paler, especially the buff of posterior under parts.

Adult male.—Length (skins), 176–204 (192.6); wing, 80–92 (86.7); tail, 76–86 (80.7); exposed culmen, 20.5–26 (23.3); tarsus, 26.5–30 (28.3); middle toe, 18–20 (19.2).^a

Adult female.—Length (skins), 162–198 (185.4); wing, 79–88 (83.3); tail, 70–84 (78.7); exposed culmen, 19.5–24 (22.1); tarsus, 25.5–29 (27.6); middle toe, 17.5–20 (18.8).^a

^a Twenty-nine specimens.

Series from different geographic areas average, respectively, as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Ten adult males from Rio Grande Valley.....	85.5	79	23.3	27.9	19.1
Ten adult males from Arizona and northern Sonora.....	87.8	83.1	20.6	28.0	19.1
Nine adult males from southern California and northern Lower California.....	86.9	79.9	23.7	28.7	19.2
FEMALES.					
Ten adult females from Rio Grande Valley.....	83.4	74.9	22.2	27.4	18.8
Ten adult females from New Mexico and Arizona.....	83.4	80.1	21.9	27.7	18.7
Nine adult females from southern California and northern Lower California.....	83.2	77.6	22.3	27.6	18.9

I am not able to discover any color differences whatever, except that some examples from the coast district of California have the back more conspicuously streaked than others. The series from the coast district of southern California is, however, very unsatisfactory.

Desert region near southwestern border of United States, from lower Rio Grande Valley to southern California (Inyo, San Bernardino, Kern, Riverside, Orange, Los Angeles, and interior of San Diego, counties), and northern Lower California (Seven Wells); north to southern Utah (St. George; Beaverdam Mountains), and southern Nevada (Vegas Valley; Bitter Springs; between Virgin and Muddy rivers); south into northern Mexico (more northern portions of States of Tamaulipas, Nuevo Leon, Coahuila, Chihuahua, and Sonora."

Picolaptes brunneicapillus (not of Lafresnaye) LAWRENCE, Ann. Lyc. N. Y., v, 1852, 114 (Texas).—BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 327 (Texas).—CASSIN, Illustr. Birds Cal., Tex., etc., 1854, 156, pl. 25.

Campylorhynchus brunneicapillus SCLATER, Proc. Ac. Nat. Sci. Phila., viii, 1856, 264, part (monogr.); Cat. Am. Birds, 1862, 17, part (New Mexico).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 335; Cat. N. Am. Birds, 1859, no. 262; Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 13 (Ringgold Barracks, Texas; Monterey, Nuevo Leon; Fort Yuma, California); Review Am. Birds, 1864, 99, part (except locality San Diego).—HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 41 (Colorado Desert, bet. Tejon Pass and Mojave R.; habits; descr. nest).—DRESSER, Ibis, 1865, 483 (Eagle Pass, Texas, n. e. to Nueces R.).—COUES, Proc. Ac. Nat. Sci. Phila., 1866, 77 (Arizona); 1868, 83 (do); Check List, 1873, no. 43; 2d ed., 1882, no. 63; Birds Col. Val., 1878, 156.—BUTCHER, Proc. Ac. Nat. Sci. Phila., 1868, 149 (Laredo, Texas).—COOPER, Am. Nat., iii, 1869, 183, in text (Fort Mojave, California); Orn. Cal., 1870, 61, part.—MERRIAM, Sixth Ann. Rep. U. S. Geol. Surv. Terr. for 1872, 1873, 713 (Utah).—YARROW and HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 9 (St. George, s. Utah, Oct.).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 41 (St. George, Utah), 100 (Gila R., Arizona; habits); 1876, 23 (near Kernville, California); Zool. Exp. W. 100th Merid., 1875, 178 (Nevada; St. George, Utah; localities in Arizona; s. w. New Mexico; habits).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 132, pl. 8, fig. 5; iii, 1874, 503 (s. Utah; s. Nevada).—RIDGWAY, Bull. Essex Inst., vii, 1875, 35 (s. Nevada); Nom. N. Am. Birds, 1881, no. 56.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 67, part.—HOFFMAN, Bull. U. S. Geol. and Geog. Surv. Terr., vi, 1881, 214 (s. Nevada).—HOLTERHOFF, Orn. and Ool., vi, —, 11 (breeding habits, descr. nest and eggs, etc.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 713.—EVERMANN, Auk, iii, 1886, 185 (Ventura Co., California, summer resid.).—LLOYD, Auk, iv, 1887, 297 (Tom Green Co., Texas, resident).—MORCOM, Bull. Ridgw. Orn. Club, no. 2, 1887, 54 (s. California).—COOKE, Bird Migr. Miss. Val., 1888, 270 (San Angelo and Tom Green counties, Texas).—ATTWATER, Auk, ix, 1892, 342 (San Antonio, Texas, resident).—NEHRING, Our Native Birds, etc., i, 1893, 135, pl. 4, fig. 2.—ALLEN, Bull. Am. Mus. N. H., v, 1893, 41 (Opoto, n. Sonora).

[*Campylorhynchus*] *brunneicapillus* COUES, Key N. Am. Birds, 1872, 85, part.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 5, part.

^aSpecimens referable to the present form, or at least nearer to it than to *H. b. obscurus*, have been examined from the following Mexican localities:

Tamaulipas.—Camargo; Nuevo Laredo.

Nueva Leon.—Monterey; Rodriguez; Santa Catarina.

Coahuila.—Sabinas.

Chihuahua.—Casas Grandes.

Sonora.—Hermosilla; Oposura.

- [*Campylorhynchus*] *brunneicapillus* BAIRD, Proc. Ac. Nat. Sci. Phila., 1859, 304, footnote (diagnosis).—COUES, Key N. Am. Birds, 2d ed., 1884, 275, part.—RIDGWAY, Man. N. Am. Birds, 1887, 547, part.
- Campylorhynchus brunneicapillus* HENSHAW, List Birds Arizona, 1875, 155.
- Heleodytes brunneicapillus* FISHER, North Am. Fauna, no. 7, May 31, 1893, 130 (Hesperia, Kern R., etc., California; Bitter Springs, Vegas Valley, and between Muddy and Virgin rivers, Nevada; Beaverdam Mts., s. w. Utah).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xi, 1894, 48; Check List, 2d ed., 1895, no. 713.—GRINNELL (J.), Pub. 2, Pasadena Ac. Sci., 1898, 48 (Los Angeles Co., California, resident).
- H[eleodytes] brunneicapillus* RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 547, part.
- Heleodytes brunneicapillus brunneicapillus* MEARNs, Auk, xix, Apr., 1902, 141, in text (crit.).—GRINNELL (J.), Pacific Coast Avifauna, no. 3, June 25, 1902, 68.
- Campylorhynchus couesi* SHARPE, Cat. Birds Brit. Mus., vi, 1881, 196 (type locality not indicated; coll. Salvin & Godman).—REICHENOW and SCHALOW, Journ. für Orn., 1884, 422 (reprint of original descr.).
- Heleodytes brunneicapillus couesi* MEARNs, Auk, xix, Apr., 1902, 143, 145 (diagnosis; range).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 442, footnote.
- Heleodytes brunneicapillus anthonyi* MEARNs, Auk, xix, Apr., 1902, 143, 145 (Adonde Siding, S. P. R. R., Arizona; coll. U. S. Nat. Mus.).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 442, footnote.

HELEODYTES JOCOSUS (Sclater).

BOUGARD'S CACTUS WREN.

Most like *H. gularis*, but pileum more dusky, under parts more purely white and more profusely spotted, the posterior portions but slightly if at all buffy, and lores dusky.

Adults (sexes alike) in late winter, spring, and summer.—Pileum and nape dark sooty^a (the hindneck sometimes brownish), the feathers margined, more or less distinctly, with sepia; extreme lower hindneck and sides of neck conspicuously streaked with black and white, the white streaks narrower on hindneck, much broader on sides of neck; back, scapulars, rump, and upper tail-coverts brown (between broccoli and light bistre), the back and scapulars conspicuously variegated with black and white, mostly in form of large, usually transverse, irregular spots of the former and irregular (often triangular) streaks or spots of the latter; rump similarly but less conspicuously variegated, the markings more or less concealed; upper tail-coverts barred with paler brown and dusky; middle pair of rectrices and outer web of next pair light grayish brown barred, more or less broadly, with dusky; outer webs of remaining rectrices black, broadly barred or transversely spotted with pale grayish brown, becoming dull whitish on outermost rectrix, the terminal darker space on each, however, grayish brown, instead of black; inner webs of all but middle pair of rectrices mostly plain dusky, broadly tipped with grayish brown, this preceded by a broad, subterminal band of dull

^a Fading to sepia brown in worn midsummer specimens.

white;^a wings brown, conspicuously variegated with broad bands of dusky, the interspaces between these dusky bands becoming buffy white or dull white on outermost primaries; a conspicuous, sharply defined superciliary stripe of white; lores and a broad postocular stripe dark sooty or dull blackish; suborbital, malar, and lower half (or more) of auricular regions, and under parts, white, slightly tinged with pale brownish buff on flanks; a more or less distinct submalar streak of black; chest (sometimes lower throat also), breast, sides, and abdomen more or less densely spotted with black, the spots more or less roundish, but varying to cordate or guttate form, those on sides of breast and on sides sometimes transverse; flanks with the spots distinctly transverse, sometimes forming regular broad bars; under tail-coverts spotted or barred with black; thighs pale brown, narrowly barred with darker brown or dusky; bill dusky horn color or blackish, becoming abruptly paler on lower basal half (more or less) of mandible; iris reddish brown;^b legs and feet dark horn color in dried skins, dusky ash color in life.^b

Adults in autumn and early winter.—Similar to the spring and summer plumage but browner above, with the black and white markings obscured by partial concealment; brown margins to feathers of pileum broader, nearly concealing the blackish central spaces; nape uniform brown; superciliary stripe and posterior under parts more buffy white, especially the latter.

Young.—Essentially like adults, but pileum uniform sooty black; paler markings of back, etc., light brown (wood brown or cinnamon) instead of white; superciliary stripe obsolete from eye forward, the blackish of forehead and crown coming down to upper eyelid and lores; under parts duller whitish (more or less tinged with brownish or grayish), the spots smaller, less sharply defined, less deeply black.

Adult male.—Length (skins), 160–177 (171.1); wing, 72.5–77 (74.7); tail, 67–71 (68.9); exposed culmen, 21–24 (23); tarsus, 22–25 (24.5); middle toe, 16–18 (16.9).^c

Adult female.—Length (skins), 160–165 (163); wing, 68–74 (71.1); tail, 61–68 (64.9); exposed culmen, 20–23 (22.4); tarsus, 22.5–25 (24.1); middle toe, 15.5–17 (16).^c

Southeastern Mexico, in States of Puebla (Chietla), Morelos (Cuernavaca), Oaxaca (Oaxaca; Dondominguello; Cinco Señores; Cuicatlan; Mitla; Cerro San Felipe), Guerrero (Chilpancingo; Tixtla; Omilteme), and Jalisco (Sierra Nevada).

Campylorhynchus jocosus SCLATER, PROC. Zool. Soc. Lond., 1859, 371 (Oaxaca, Oaxaca, Mexico; coll. P. L. Selater); Cat. Am. Birds, 1862, 17, pl. 3 (do.).—BAIRD, Review Am. Birds, 1864, 106 (Oaxaca).—LAWRENCE, Bull. U. S. Nat.

^a Usually there are more or less distinct indications of one or two narrow white bands or bars anterior to this.

^b F. Sumichrast, manuscript.

^c Ten specimens.

Mus., no. 4, 1876, 13 (Dondominguello, Oaxaca).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 66.—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 193.—SALVIN, Cat. Strickland Coll., 1882, 75 (Cinco Señores, Oaxaca).—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 135 (Chietla, Puebla).
[*Campylorhynchus*] *jocosus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 5.

HELEODYTES GULARIS (Sclater).

SPOTTED CAOTUS WREN.

Adults (sexes alike).—Pileum and hindneck brown (between mummy brown and prouts brown), the feathers dusky beneath the surface, fading in midsummer plumage to paler and grayer brown (between hair brown and isabella color), especially on forehead; upper back or extreme lower hindneck black, each feather with a mesial streak of pale buff or buffy white; back and scapulars brown (much like color of pileum), variegated with whitish or pale buffy triangular spots (about three on each feather), these usually connected by a narrow (sometimes broad) mesial streak, the space between the whitish or buffy spots largely occupied by more or less transverse spots of black; rump similar in coloration to back, but markings much less distinct; upper tail-coverts brown, broadly barred with dusky and narrowly (sometimes indistinctly) barred with pale brownish buffy or whitish; four middle rectrices pale grayish brown, narrowly barred or transversely spotted with dusky; remaining rectrices with inner webs plain dusky, broadly tipped with dull white, this extensively clouded with pale grayish brown and sometimes more or less broken by irregular black markings,^a their outer webs transversely spotted or broadly barred with black and pale buffy grayish brown; wings brown, conspicuously variegated by transverse black spots or bands, the interspaces paler and more buffy (sometimes partly whitish) on primaries and larger wing-coverts, the middle coverts with a small terminal triangular spot of white; a broad superciliary stripe of buff or buffy white, continued in broken streaks on sides of hindneck; a broad postocular stripe of dark brown, occupying upper half of auricular region; sides of neck broadly streaked with dark brown or blackish and buff or buffy white; suborbital and malar regions and lower half of auricular region white or buffy white, the latter usually finely streaked with dusky; a distinct submalar streak of black; under parts buffy white (more decidedly white in worn breeding plumage), passing into cinnamon-buff on flanks, anal region, and under tail-coverts, the buffy posterior portions barred with deeper cinnamon-buff or cinnamon-rufous; breast and sides marked with roundish, cordate or broadly guttate spots of black, these sometimes wanting on median portion of breast, sometimes extending over lower chest; flanks and

^aSometimes there are one or two broad bars or transverse spots anterior to the terminal space, and separated from the latter by a black band or spot.

under tail-coverts with larger and more transverse spots of black; bill dusky horn color, abruptly paler on lower basal half (or more) of mandible; legs and feet light brown (in dried skins).

Young.—Very different in coloration from adults; pileum uniform slaty black; back and scapulars broadly streaked with dull slaty blackish and pale buffy brown, but without other markings; upper tail-coverts plain brown (between wood brown and prouts brown); broad superciliary stripe brownish buff or pale wood brown; broad postocular stripe dull black or slate-black; under parts wholly immaculate, including even flanks and under tail-coverts, the buff of posterior portions duller than in adults.

Adult male.—Length (skins), 165–180 (172.9); wing, 70–74 (72.5); tail, 66–74 (70); exposed culmen, 18–21 (19.6); tarsus, 23–25 (24.2); middle toe, 16–18 (17).^a

Adult female.—Length (skins), 156–175 (166.3); wing, 69.5–74 (70.5); tail, 65–71 (68.3); exposed culmen, 17–21 (19.3); tarsus, 22–26 (23.8); middle toe, 15.5–18 (16.9).^a

West-central Mexico, in States of Jalisco (Sierra Nevada; Tonila; Bolaños; Volcan de Colima), northern Michoacan (Uruapan), Durango (Chacala), Sinaloa (Plomosas), Sonora (western slope of Sierra Madre), Chihuahua (Mina Abundancia; El Carmen; near Batopilas; Bravo), and Queretaro (Jalpan), and Territory of Tepic (San Blasito).

Campylorhynchus gularis SCLATER, Proc. Zool. Soc. Lond., 1860, 462 (Mexico; coll. P. L. Sclater); Cat. Am. Birds, 1862, 17.—BAIRD, Review Am. Birds, 1864, 109.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 66.—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 194, pl. 12, fig. 2.—SALVIN and GODMAN, Ibis, 1889, 235.

[*Campylorhynchus*] *gularis* GRAY, Hand-list, i, 1869, 192, no. 2653.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 5.

Heleodytes gularis NELSON, Auk, xv, Apr., 1898, 160 (s. Sinaloa; Nayarit Mts., Tepic; crit.).

[*Campylorhynchus*] *gularis* SALVIN and GODMAN, Ibis, 1889, 235, in text (w. slope of Sierra Madre, Sonora).

Heleodytes occidentalis NELSON, Auk, xiv, Jan., 1897, 69 (Sierra Nevada de Colima, Jalisco; coll. U. S. Nat. Mus.).

Heleodytes stridulus NELSON, Proc. Biol. Soc. Wash., xiii, May 29, 1899, 30 (Sierra de Choix, n. e. Sinaloa; coll. U. S. Nat. Mus.).

Genus PHEUGOPEDIUS Cabanis.

Pheugopedius ^b CABANIS, Mus. Hein., i, 1850, 79. (Type, *Sphenura coraya* ^c Lichtenstein, = *Thryothorus genibarbis* Swainson.)

Medium sized Troglodytidae (wing 55–70 mm.) with lateral toes equal, the inner united more to middle toe than to hallux, tail graduated for one-third its length or more, ninth primary much shorter than

^a Ten specimens.

^b From “φευγω, flüchten; πεδιον, offenes Land.”

^c Not *Turdus coraya* Gmelin.

secondaries, nostril narrower than the very broad operculum, and rump without concealed white spots.

Bill shorter than head, stout, usually more or less subcuneate; exposed culmen longer than middle toe without claw, straight for at least the basal half, rather abruptly decurved terminally; gonys decidedly shorter than distance from nostril to tip of maxilla, straight; maxillary tomium slightly concave, strongly but gradually deflexed basally, usually with a slight, sometimes distinct, indication of a subterminal notch; mandibular rami strongly bent. Nostril longitudinal, linear or slenderly fusiform, overhung by a broad, membranous decumbent operculum, its posterior end in contact with (sometimes partly covered by) feathers of the latero-frontal antiae. Rictal bristles obvious, but very short and inconspicuous, very rarely one or two of them well developed. Wing short and rounded; seventh to third, or sixth to fourth, primaries longest and nearly equal, the eighth not longer than third, sometimes shorter than second, the ninth shorter than secondaries (usually very much so) and less (usually much less) than twice as long as tenth. Tail about four-fifths as long to nearly as long as wing, graduated for one-third its length, or more, the rectrices broadly rounded at tip. Tarsus much longer than exposed culmen, a little more than one-third to two-fifths as long as wing, the acrotarsium distinctly scutellate, the planta tarsi booted; middle toe, without claw, shorter than exposed culmen (sometimes nearly as long); outer toe slightly but distinctly longer than inner, reaching (without claw) nearly, sometimes quite, to middle of subterminal phalanx of middle toe, its claw reaching to base of middle claw; inner toe (without claw) reaching to very slightly beyond middle (subterminal) joint of middle toe; hallux (without claw) about as long as outer toe (without claw), its claw decidedly shorter than the digit; basal phalanx of middle toe adherent to outer toe for nearly its entire length, to inner toe for nearly as far.

Coloration.—Above plain brown, varying from grayish brown or hair brown to chestnut-brown, the pileum sometimes different in color from back, etc.; remiges usually narrowly and indistinctly barred with dusky; tail broadly barred with black and light brownish, sometimes mostly black; under parts extremely variable in color, but never entirely black nor wholly white.

Range.—Southern Mexico to southern Brazil and Bolivia. (Numerous species.)

KEY TO THE SPECIES AND SUBSPECIES OF PHEUGOPEDIUS.

- a. Throat and tail uniform black (the last rarely with indications of brown bars) (Costa Rica and Nicaragua.) *Pheugopedius atrogularis* (p. 530)
- aa. Throat at least partly white; tail barred with brown and black, or dusky.
 - b. Under parts of body black, dusky, or brown, with or without whitish or pale brownish bars. (*Pheugopedius fasciato-ventris*.)
 - c. Under parts of body black or dark grayish, more or less barred. (Adults.)

- d. Auricular region immaculate white, except upper margin; breast barred with white. (Interior of Colombia.)

***Phengopedius fasciato-ventris fasciato-ventris*, adults (extralimital)^a**

- dd. Auricular region not immaculate white; breast plain black or dusky.

- e. Auricular region entirely black or dusky (sometimes finely streaked with whitish; flanks distinctly barred; brown of back, etc., lighter, duller; tail black, barred with pale brown. (Isthmus of Panama.)

***Phengopedius fasciato-ventris albigularis*, adults (p. 531)**

- ee. Auricular region partly white, flanks not distinctly, if at all, barred; brown of back, etc., darker and more castaneous; tail chestnut, barred with black. (Veragua, Chiriqui, and Costa Rica.)

***Phengopedius fasciato-ventris melanogaster*, adults (p. 532)**

- cc. Under parts of body plain brown. (Young.)^b
 bb. Under parts of body neither black, dusky, nor brown.
 c. Throat streaked, spotted, or barred with black, or else the chest spotted.
 d. Chest tawny; throat white, barred with black, or black spotted with white; chest not spotted, or else the ground-color tawny.
 e. Chest plain tawny.
 f. Throat black, spotted with white; abdomen pale tawny or buffy. (Isthmus of Panama to Costa Rica.)

***Phengopedius hyperythrus*, adults (p. 533)**

- ff. Throat barred with black and white; abdomen white. (Guiana, Venezuela, Trinidad, and Tobago.)

***Phengopedius rutilus*, adults (extralimital)^c**

- ee. Chest spotted with black. (Province of Santa Marta, Colombia.)

***Phengopedius lætus*, adults (extralimital)^d**

- dd. Chest white, spotted or variously marked with white or dusky. (*Phengopedius maculipectus*.)
 e. Darker and browner, the back olive-brown or russet-brown, the flanks raw umber to russet.

- f. Paler, the back more olive-brown, the flanks raw umber; chest, etc., with black spots smaller; slightly smaller (adult male averaging wing 58.1, tail 47.7, exposed culmen 16.6, tarsus 22.1; adult female, wing 54.6, tail 46.9, exposed culmen 16.) (Southern Tamaulipas to Oaxaca.)

***Phengopedius maculipectus maculipectus* (p. 534)**

- ff. Darker, the back more russet-brown, the flanks russet; chest, etc., with black spots heavier; slightly larger (adult male averaging wing 60.9, tail 48.9, exposed culmen 17.4; adult female, wing 56.6, tail 46.5, exposed culmen 16.8). (Eastern Oaxaca, Tabasco, and Chiapas to Honduras.)

***Phengopedius maculipectus umbrinus* (p. 535)**

^a *Thryothorus fasciato-centris* Lafresnaye, Rev. Zool., viii, 1845, 337 (Bogota, Colombia; type now in coll. Bost. Soc. N. H.).—*Thryothorus fasciiventris* Sclater and Salvin, Proc. Zool. Soc. Lond., 1879, 493 (Remedios and Neche, Colombia); Salvin and Godman, Biol. Centr.-Am., Aves, i, 1880, 90, part (Colombia); Sharpe, Cat. Birds Brit. Mus., vi, 1881, 229, pl. 14, fig. 1 (Bogota).—*Phengopedius fasciato-ventris* Baird, Review Am. Birds, 1864, 134, part (Bogota).

^b Only that of *P. f. albigularis* seen by me.

^c *Thryothorus rutilus* Vieillot, Nouv. Dict. d'Hist. Nat., xxxiv, 1819, 55 (South America; coll. Paris Mus.); Sharpe, Cat. Birds Brit. Mus., vi, 1881, 238.—*Phengopedius rutilus* Baird, Review Am. Birds, 1864, 135, part.—*T[hryothorus] rutilans* Swainson, Ornithological Drawings, pt. 2, 1834, pl. 15.—*Troglodytes rutilans* L'Éclaud, Ois. Trinidad, 1866, 173.

^d *Thryothorus lætus* Bangs, Proc. Biol. Soc. Wash., xii, Aug. 10, 1898, 160 (Puebla Vieja, Santa Marta, Colombia, 8,000 ft. alt.; coll. E. A. and O. Bangs).

cc. Paler and grayer, the back broccoli brown, the flanks grayish buff or pale wood-brown. (Yucatan and Campeche.)

Phlegopedius maculipectus cano-brunneus (p. 536)

cc. Throat immaculate white (margined laterally with a more or less distinct submalar streak of black).^a (*Phlegopedius felix*.)

d. Sides of head broadly and conspicuously streaked with black. (Mainland forms.)

e. Larger (wing 56.5-60 in male, 53.5-58.5 in female; coloration darker and more rufescent, the flanks bright tawny-ochraceous).^b

f. Smaller, with relatively shorter tail (adult male averaging, wing 56.2, tail 56.2, exposed culmen 15.9, tarsus 21.4; adult female, wing 54.1, tail 52.3, culmen 15.5, tarsus 20). (Southwestern Mexico.)

Phlegopedius felix felix (p. 536)

ff. Larger, with relatively longer tail (adult male averaging wing 59.1, tail 61.6, exposed culmen 16.2, tarsus 21.8; adult female, wing 56.5, tail 59.2, exposed culmen 15.7, tarsus 21.2). (South-central Mexico.)

Phlegopedius felix grandis (p. 537)

cc. Smaller (wing 53-58 in male, 51-55 in female); coloration paler and grayer, the flanks grayish buff or clay color. (Western Mexico.)

Phlegopedius felix pallidus (p. 538)

dd. Sides of head more lightly and more sparsely streaked with black, sometimes with streaks obsolete. (Tres Marias Islands forms.)

e. Paler; upper parts and flanks averaging paler than in *P. f. pallidus* (Maria Madre Island, Tres Marias group.)

Phlegopedius felix lawrencei (p. 538)

cc. Darker; upper parts and flanks as dark as average of *P. f. pallidus* (Maria Magdalena Island, Tres Marias.)

Phlegopedius felix magdalensis (p. 539)

PHEUGOPEDIUS ATROGULARIS (Salvin).

BLACK-THROATED WREN.

Adult male.—Above plain dark chestnut-brown or vandyke brown, the pileum usually darker and duller, the upper tail-coverts with dusky bars (mostly concealed); tail black, the outer webs of rectrices usually showing traces of brownish bars, especially on basal portion: tertials dusky margined with chestnut-brown, the concealed portion of other wing-feathers also dusky; sides of head, chin, throat, and chest black, the auricular and superciliary regions more or less streaked with white; under parts of body, posterior to chest, plain mummy brown, the feathers dusky beneath surface; under tail-coverts black, barred with white and pale brown; maxilla black with paler tomia; mandible grayish (bluish gray in life?); legs and feet grayish dusky or dark horn color (in dried skins); length (skins), 132-146 (140); wing, 64-69 (66.3); tail, 49-55 (51); exposed culmen, 20; tarsus, 24-26 (25); middle toe, 15-16 (15.3).^c

^a This sometimes obsolete.

^b *P. f. grandis* varies in coloration, the extremes closely matching *P. f. felix* and *P. f. pallidus*, respectively; but it may always be distinguished by its greater measurements.

^c Three specimens.

Adult female.—Similar to the adult male and not always distinguishable, but averaging a little lighter in color; length (skins), 127–140 (132); wing, 60–63 (61.5); tail, 47–51 (48.2); exposed culmen, 18–19 (18.8); tarsus, 22.5–23 (22.9); middle toe, 14–15 (14.8).^a

Costa Rica (Tucurrique; Pacuare; Jiménez) and Nicaragua (Greytown; Rio Escondido).

Thryothorus atrogularis SALVIN, Proc. Zool. Soc. Lond., 1864, 580 (Tucurrique, Costa Rica; coll. Salvin and Godman).—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 483 (Rio Escondido, Nicaragua; habits).—ZELEDON, Proc. U. S. Nat. Mus., viii, 1885, 105 (Costa Rica); Anal. Mus. Nac. Costa Rica, i, 1887, 105 (Pacuare; Jiménez).

[*Thryothorus*] *atrogularis* SCLATER and SALVIN, Noin. Av. Neotr., 1873, 7.

Thryothorus atrigularis SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 91, pl. 6, fig. 4.—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 231 (Tucurrique).

Phygopedius atrogularis ? LAWRENCE, Ann. Lyc. N. Y., viii, 1865, 180 (Greytown, Nicaragua).

Phygopedius atrogularis LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 92 (Tucurrique, Costa Rica).—ZELEDON, Cat. Aves de Costa Rica, 1882, 3.

[*Troglodytes*] *atrogularis* GRAY, Hand-list, i, 1869, 190, no. 2590.

PHEUGOPEDIUS FASCIATO-VENTRIS ALBIGULARIS (Sclater).

PANAMA BLACK-BELLIED WREN.

Similar to *P. f. fasciato-ventris*,^b but auricular region wholly dusky, under parts less extensively and less broadly barred with white, breast uniform black or dusky gray, and brown of upper parts darker.

Adult male.—Above plain chestnut-brown, or between burnt umber and mummy brown, the pileum duller, especially on forehead, where sometimes inclining to grayish brown or dusky; upper tail-coverts usually narrowly barred (more or less distinctly) with black; tail black, narrowly barred on outer webs with light brown, the inner webs with indications of similar bars along edge; wings narrowly and indistinctly barred with dusky; loreal, suborbital, and auricular regions entirely dusky, the last sometimes finely streaked with paler; a more or less distinct narrow superciliary line of white streaks; malar region, chin, throat, and chest uniform white; breast black or dusky gray, some of the feathers of lower portion usually with narrow and indistinct dull whitish bars; rest of under parts (except thighs) black or dusky gray narrowly barred with whitish, the bars becoming brownish on flanks; thighs brown, narrowly barred with dusky; maxilla black with whitish tomia; mandible pale grayish (in dried skins); iris brown; legs and feet black; length (skins), 143–153 (147.6); wing, 66–69 (67.3); tail, 52–54.5 (53.6); exposed culmen, 19–21.5 (19.9); tarsus, 22–25.5 (24.6); middle toe, 15.5–18 (16.3).^c

Adult female.—Similar to the adult male, but black of under parts averaging much duller (the color usually dusky grayish or brownish

^a Five specimens.

^b See footnote on page 529.

^c Seven specimens.

gray, sometimes tinged with light brown, and paler bars of posterior under parts light brown instead of whitish); length (skin), 147.5; wing, 64.5; tail, 55; exposed culmen, 18; tarsus, 23; middle toe, 15.5.^a

Young.—Chest uniform light brownish gray; rest of under parts uniform light brown, the under tail-coverts barred with dusky.

Isthmus of Panama (Aspinwall; Lion Hill; Panama; Paraiso Station) and along Caribbean coast of Colombia to Santa Marta.

Cyphorhinus albigularis SCLATER, Proc. Zool. Soc. Lond., 1855, 76, pl. 88 (Panama: coll. Derby Mus., Liverpool); 1857, 4 (Panama).

Thryothorus albigularis SHARPE, Cat. Birds Brit. Mus., vi, 1881, 230 (Paraiso station, Panama R. R.).

Thryothorus fasciatoventris albigularis BANGS, Proc. New Engl. Zool. Club, ii, Sept. 20, 1900, 27 (Loma del Leon, Panama R. R.).

Pheugopedius fasciato-ventris (not *Thryothorus fasciato-ventris* Lafresnaye) BAIRD, Review Am. Birds, 1864, 134, part (Panama R. R.).

Cyphorhinus fasciatoventris LAWRENCE, Ann. Lyc. N. Y., vii, 1861, 320 (Lion Hill, Panama R. R.).

Thryothorus fasciatoventris SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 346 (Lion Hill, Panama R. R.).

[*Thryothorus*] *fasciato-ventris* BAIRD, Review Am. Birds, i, 1864, 121, part.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 7, part.

Thryothorus fasciatoventris SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1885, 90, part (Panama and Lion Hill, Panama R. R.).—ZELEDON, Anal. Mus. Nac. Costa Rica, i, 1887, 105, part (Panama).

[*Troglodytes*] *fasciatoventris* GRAY, Hand-list, i, 1869, 189, no. 2585, part (Panama).

PHEUGOPEDIUS FASCIATO-VENTRIS MELANOGASTER (Sharpe).

BLACK-BELLIED WREN.

Similar to *P. f. albigularis*, but slightly larger; upper parts darker and richer chestnut-brown (the back decidedly chestnut); tail more broadly barred, the bars chestnut instead of light brown; auricular region largely mixed with white on lower portion; under parts of body more extensively uniform black or dusky, only the lower abdomen and under tail-coverts being distinctly barred, the bars on under tail-coverts light chestnut-brown instead of white.

Adult male.—Length (skins), 135.5–156.5 (146.5); wing, 67–71.5 (69.3); tail, 53.5–61 (57.2); exposed culmen, 18–20.5 (19.2); tarsus, 24–25.5 (25.1); middle toe, 15.5–17 (16.5).^b

Adult female.—Length (skins), 122–152.5 (139.4); wing, 61.5–68 (65.2); tail, 52.5–56.5 (53.8); exposed culmen, 18.5–19 (18.8); tarsus, 22.5–24.5 (23.5); middle toe, 15.5–16.5 (15.9).^c

Veragua (Bugaba; Bibalá; Chitra) and Chiriqui (Divala) to Costa Rica (Pozo Azul de Pirris; Medellin; San Mateo).

Thryothorus fasciatoventris (not of Lafresnaye) SALVIN, Proc. Zool. Soc. Lond., 1870, 180 (Bugaba, Veragua).

^aOne specimen.

^bEight specimens.

^cFour specimens.

Thryothorus fasciiventris SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 90, part (San Mateo, Costa Rica; Bugaba and Bibalá, Veragua).—ZELEDON, Proc. U. S. Nat. Mus., viii, 1885, 105 (Costa Rica); Anal. Mus. Nac. Costa Rica, i, 1887, 105, part (Pozo Azul de Pirris, Costa Rica).

Pheugopedius fasciiventris LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 92 (San Mateo, Costa Rica).—FRANTZII'S, Journ. für Orn., 1869, 291 (Costa Rica).—ZELEDON, Cat. Aves de Costa Rica, 1882, 3.

[*Troglodytes*] *fasciatoventris* GRAY, Hand-list, i, 1869, 189, no. 2585, fide Sharpe.^a

Thryothorus melanogaster SHARPE, Cat. Birds Brit. Mus., vi, 1881, 230, pl. 14, fig. 2 (Bugaba, Veragua; coll. Brit. Mus.).—REICHENOW and SCHALOW, Journ. für Orn., 1884, 429 (reprint of orig. descr.).—CHERRIE, Proc. U. S. Nat. Mus., xiv, 1891, 521 (Pozo Azul de Pirris, Costa Rica; crit.); Expl. Zool. Merid. Costa Rica, 1893, 11 (Palmar, Largasto, and Buenos Aires, s. w. Costa Rica).—RIDGWAY, Proc. U. S. Nat. Mus., xiv, 1891, 523 (descr.).

Thryothorus fasciiventris melanogaster BANGS, Auk, xviii, Oct., 1901, 368 (Divala, Chiriqui).

Thryothorus fasciatoventris melanogaster BANGS, Proc. New Engl. Zool. Club, iii, 1902, 53 (Bogaba, Veragua).

PHEUGOPEDIUS HYPERYTHRUS (Salvin and Godman).

TAWNY-BELLIED WREN.

Adults (sexes alike).—Forehead and crown deep russet or mars brown, passing into lighter brown (between raw umber and bistre) on occiput and hindneck; back, scapulars, rump, and upper tail-coverts plain olive-brown, the wings similar, but slightly browner; tail grayish brown, broadly barred or banded with black; pileum margined laterally by a narrow line of black; beneath this a narrow superciliary streak of white; auricular, suborbital, and malar regions, chin, and throat black, the first three broadly streaked, the last two spotted, with white (this sometimes predominating on throat); rest of under parts plain tawny-ochraceous, deepest on chest, paler (sometimes pale tawny-buff) on abdomen, tinged with brown on flanks; under tail-coverts brownish white, broadly barred with black or dusky; maxilla dusky, with paler tomia; mandible grayish (bluish gray in life?); iris brown;^b legs and feet grayish dusky or horn color (in dried skins).

Adult male.—Length (skins), 109.5–131.5 (123); wing, 53.5–60.5 (57.8); tail, 45–52 (49.5); exposed culmen, 15.5–17.5 (16.7); tarsus, 17.5–22 (20.8); middle toe, 13–13.5 (13.2).^c

Adult female.—Length (skins), 120.5–130 (125.2); wing, 54–56 (55); tail, 45.5–49.5 (47.5); exposed culmen, 15–16.5 (15.7); tarsus, 20.5–21.5 (21); middle toe, 12.5.^d

Isthmus of Panama (Paraiso Station; Panama), Veragua (Santa Fé; Calovevora; Santiago; Boquete de Chitra; Bugaba), Chiriqui (Boquete), and western Costa Rica (La Palma de Nicoya; Carrillos de Alajuela; Boruca; Térraba; Buenos Aires).

^a Specimens in British Museum?; certainly not otherwise.

^b W. W. Brown, jr., manuscript on labels.

^c Eight specimens.

^d Two specimens.

- Thryothorus rutilus* (not of Vieillot) LAWRENCE, Ann. Lyc. N. Y., vii, 1861, 320 (Panama R. R.).—SALVIN, Proc. Zool. Soc. Lond., 1867, 134 (Santa Fé and Santiago, Veragua); 1870, 181 (Boquete, Calovevora, and Bugaba, Veragua). [*Thryothorus*] *rutilus* BAIRD, Review Am. Birds, 1864, 121, part.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 7, part (Veragua).
- Pheugopedius rutilus* BAIRD, Review Am. Birds, 1864, 135, part (Panama R. R.).
- Thryothorus hypertythus* SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, sig. 12, Apr., 1880, 91 (Paraiso Station, Panama R. R.; coll. Salvin and Godman).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 239 (Santiago, Veragua).—RIDGWAY, Proc. U. S. Nat. Mus., iv, 1881, 334 (Carrillos de Alajuela, Costa Rica; crit.).—ZELEDON, Proc. U. S. Nat. Mus., viii, 1885, 105 (Costa Rica); Anal. Mus. Nac. Costa Rica, i, 1887, 105 (La Palma de Puntarenas).—CHERRIE, Proc. U. S. Nat. Mus., xiv, 1891, 521 (Pacific side Costa Rica; crit.); Expl. Zool. Merid. Costa Rica, 1893, 12 (Boruca, Térraba, and Buenos Aires, s. w. Costa Rica; crit.).—BANGS, Proc. New Engl. Zool. Club, iii, 1902, 53 (Boquete, Chiriqui, 4,000 to 4,500 ft.).
- Thryothorus rutilus hypertythus* RIDGWAY, Proc. U. S. Nat. Mus., v, Sept. 5, 1882, 390 (La Palma de Nicoya, w. Costa Rica).—CHAPMAN, Bull. Am. Mus. N. H., vi, 1894, 23, in text.
- Thryophilus hypertythus* ZELEDON, Cat. Aves de Costa Rica, 1882, 3.

PHEUGOPEDIUS MACULIPECTUS MACULIPECTUS (Lafresnaye).

SPOTTED-BREASTED WREN.

Adults (sexes alike).—Pileum and hindneck plain russet or tawny-brown (varying from tawny-olive in worn summer plumage to russet-brown in fresher plumage); rest of upper parts plain light olive-brown or raw-umber;^a tail similar, but usually somewhat paler, sometimes slightly more tawny or rufescent, more or less distinctly barred with black or dusky; a sharply defined superciliary stripe of white, margined above by a narrow line of black, along sides of pileum; a black or dusky postocular streak occupying upper portion of auricular region; lores grayish, sometimes forming a distinct streak between eye and bill; suborbital and malar regions and greater part of auricular region white, conspicuously streaked or otherwise marked with black; sides of neck olive-grayish, streaked with black and white anteriorly; chin, throat, chest, and abdomen white, thickly marked with irregular but mostly roundish spots of white, the chin and upper throat immaculate, but margined laterally by a black submalar streak; sides, flanks, and thighs plain light brown (varying from light raw-umber to light isabella color); under tail-coverts white, broadly barred with black or dusky; maxilla black, with paler tomia; mandible pale grayish (in dried skins); legs and feet grayish dusky or dusky horn color (in dried skins).

Young.—Similar in coloration to adults, but anterior and median under parts duller white (usually more or less washed with pale brownish), with spots much smaller (sometimes streak-like), less sharply

^aThe color is brighter or more decided in fresh plumage, less so in worn livery.

defined, and dull grayish instead of black; markings on sides of head much less distinct; under tail-coverts light wood brownish, like flanks, etc., without bars or other markings.

Adult male.—Length (skins), 120–133 (125.7); wing, 56–62.5 (58.1); tail, 45–51 (47.7); exposed culmen, 15.5–17.5 (16.6); tarsus, 21.5–22.5 (22.1); middle toe, 13–15 (14).^a

Adult female.—Length (skins), 118–137 (124.4); wing, 52–60 (54.6); tail, 45–51.5 (46.9); exposed culmen, 16; tarsus, 20–23 (21.4); middle toe, 13–15 (14.1).^b

Southeastern Mexico, in States of Vera Cruz (Jico; San Andres Tuxtla; Papantla; Coatepec; Tlacotalpam; Buena Vista; Pasa Nueva; Jalapa; Cordova; Orizaba), Puebla (Metlaltoyuca), Oaxaca (Teotalcingo), and southern Tamaulipas (Alta Mira).

Thryothorus maculipectus LAFRESNAYE, Rev. Zool., viii, 1845, 338 (Mexico; type now in coll. Bost. Soc. Nat. Hist.; see Ridgway, Proc. Bost. Soc. N. H., xxiii, 1888, 386).—SCLATER, Proc. Zool. Soc. Lond., 1856, 290 (Cordova, Vera Cruz); 1859, 363 (Jalapa, Vera Cruz), 372 (Teotalcingo, Oaxaca); Cat. Am. Birds, 1882, 21 (Orizaba, Vera Cruz).—LAWRENCE, Bull. U. S. Nat. Mus., no. 4, 1876, 13 (Guichicovi, Oaxaca).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 92, part (Mexican references and localities).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 237, part.—RICHMOND, Proc. U. S. Nat. Mus., xviii, 1896, 632 (Alta Mira, s. Tamaulipas).—CHAPMAN, Bull. Am. Mus. N. H., x, 1898, 23 (Jalapa; song).

[*Thryothorus*] *maculipectus* BAIRD, Review Am. Birds, 1864, 121, part.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 7, part.

T[hyothorus] maculipectus RIDGWAY, Man. N. Am. Birds, 1887, 552.

Pheugopedius maculipectus BAIRD, Review Am. Birds, Sept., 1864, 135, part (Mexico).—SUMICHRIST, Mem. Bost. Soc. N. H., i, 1869, 545 (hot and temp. regions Vera Cruz).

[*Troglodytes*] *maculipectus* GRAY, Hand-list, i, 1869, 189, no. 2587, part.

PHEUGOPEDIUS MACULIPECTUS UMBRINUS (Ridgway).

GUATEMALAN SPOTTED-BREASTED WREN.

Similar to *P. m. maculipectus*, but slightly larger and decidedly darker in color, the pileum chestnut-brown, back, etc., dark raw-umber brown, flanks raw-umber to russet, and black spotting of chest, etc., heavier.

Adult male.—Length (skins), 120–139.5 (130.5); wing, 57.5–63 (60.9); tail, 45–52.5 (48.9); exposed culmen, 16.5–18.5 (17.4); tarsus, 21–22 (21.6); middle toe, 13–14.5 (13.9).^c

Adult female.—Length (skins), 122–130 (125.9); wing, 55–58 (56.6); tail, 44–49.5 (46.5); exposed culmen, 16.5–17 (16.8); tarsus, 20.5–23 (21.6); middle toe, 12.5–14 (13.1).^d

States of Chiapas (Huehuetan), Tabasco (Frontera; Teapa) and

^aThirteen specimens.

^bFive specimens.

^cSeventeen specimens.

^dSeven specimens.

eastern Oaxaca (Santo Domingo), southeastern Mexico; Guatemala (Choctum; Cajabon; Savana Grande); British Honduras (Corosal; Honduras (San Pedro; San Pedro Sula; Truxillo; Segovia River; Santa Ana; Yaruca; Ceiba).

Thryothorus maculipectus (not of Sclater) SCLATER and SALVIN, Ibis, 1860, 30 (Vera Paz, Guatemala); Proc. Zool. Soc. Lond., 1870, 836 (San Pedro, Honduras).—BOUCARD, Ois. Rec. Guatemala, 1878, 29.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 92, part (Choctum, Cajabon, and Savana Grande, Guatemala; Corosal, British Honduras; San Pedro, Honduras).—SHAEPF, Cat. Birds Brit. Mus., vi, 1881, 237, part (Guatemala; Honduras).

Pheugopedius maculipectus BAIRD, Review Am. Birds, 1864, 135, part (Cajabon, Vera Paz, Guatemala).

[*Thryothorus*] *maculipectus* BAIRD, Review Am. Birds, 1864, 121, part.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 7, part.

T[hyothorus] maculipectus umbrinus RIDGWAY, Man. N. Am. Birds, 1887, 552 (Guatemala; coll. U. S. Nat. Mus.).

Thryothorus maculipectus umbrinus RIDGWAY, Man. N. Am. Birds, 1887, 592; 2d ed., 1896, 614; Proc. U. S. Nat. Mus., x, fig. 37, Aug. 6, 1888; 579 (Truxillo, Honduras), 585 (Segovia R., Honduras).

PHEUGOPEDIUS MACULIPECTUS CANO-BRUNNEUS (Ridgway).

YUCATAN SPOTTED-BREASTED WREN.

Similar to *P. m. maculipectus*, but paler; color of pileum varying from light cinnamon-brown or russet to nearly isabella color, the back, etc., nearly broccoli brown, the flanks grayish buff or pale wood brown.

Adult male.—Length (skins), 121–129.5 (125.9); wing, 53–58.5 (56.7); tail, 46.5–50 (48.4); exposed culmen, 16–17.5 (17); tarsus, 21–22.5 (21.7); middle toe, 12.5–14 (13.3).

Adult female.—Length (skin), 116; wing, 49; tail, 44; exposed culmen, 16; tarsus, 21; middle toe, 14.^a

Yucatan (Chichen Itza; La Vega; Tunkas; Temax); Campeche (Tokaltun); British Honduras (Orange Walk).

T[hyothorus] maculipectus cano-brunneus RIDGWAY, Man. N. Am. Birds, 1887, 552 (Temax, Yucatan; coll. U. S. Nat. Mus.).

Thryothorus maculipectus canobrunneus RIDGWAY, Man. N. Am. Birds, 1887, 592; 2d ed., 1896, 614.—CHAPMAN, Bull. Am. Mus. N. H., viii, 1896, 276 (Chichen Itza, Yucatan; notes).

PHEUGOPEDIUS FELIX FELIX (Sclater).

HAPPY WREN.

Adults (sexes alike).—Pileum bright mars brown or deep russet, margined laterally by a narrow line of black; rest of upper parts plain cinnamon-brown, the remiges and upper tail-coverts sometimes (but rarely?) showing very indistinct narrow bars of dusky; tail cinnamon, more or less shaded or clouded with grayish brown, and more or less distinctly barred with dusky; a conspicuous and sharply defined

^a One specimen.

superciliary stripe of white; a more or less distinct postocular streak or stripe of dusky; auricular, suborbital, and malar regions and sides of neck white conspicuously streaked with black; chin and throat white, margined laterally by a black submalar streak; chest and median under parts cream buff, deepening on sides and flanks into ochraceous-buff or dull tawny-ochraceous;^a under tail-coverts pale ochraceous-buff, barred or transversely spotted with dusky; maxilla blackish, with paler tomia; mandible grayish (in dried skins); legs and feet grayish dusky or dark horn color (in dried skins).

Adult male.—Length (skins), 129–145 (134); wing, 56.5–60 (58.2); tail, 50.5–60 (56.2); exposed culmen, 15–16.5 (15.9); tarsus, 20.5–22.5 (21.4); middle toe, 13–14 (13.6).^b

Adult female.—Length (skins), 126.5–134 (128.6); wing, 53.5–55 (54.4); tail 50–56 (52.2); exposed culmen, 14–16 (15); tarsus, 19.5–21 (20.2); middle toe, 12–13.5 (12.5).^c

Southwestern Mexico, in States of Oaxaca (Juquila), Guerrero (El Rincon; Coquillo; Papayo; Ometepepec; Acapulco; Acahuitzotla; Iguala), Michoacan,^d and southeastern Jalisco (Tonila).

Thryothorus felix SCLATER, Proc. Zool. Soc. Lond., 1859, 371 (Juquila, Oaxaca; coll. P. L. Sclater); Cat. Am. Birds, 1862, 20 (Oaxaca).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 93, part, pl. 7, fig. 1.—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 232, part.

[*Thryothorus*] *felix* BAIRD, Review Am. Birds, 1864, 121, part.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 7, part.

[*Thryothorus*] *felix* RIDGWAY, Man. N. Am. Birds, 1887, 552, part.

Pheugopedius felix BAIRD, Review Am. Birds, Sept., 1864, 126, part (description, etc.).

[*Troglodytes*] *felix* GRAY, Hand-list, i, 1869, 190, no. 2592.

[*Thryothorus felix*] *α. felix* RIDGWAY, Bull. Nutt. Orn. Club, iii, Jan., 1878, 11, part (diagnosis).

Thryothorus ruficeps (Lafresnaye, manuscript) RIDGWAY, Proc. Bost. Soc. Nat. Hist., xxiii, Mar., 1888, 387 (type said to be from Brazil, but probably from Oaxaca).

PHEUGOPEDIUS FELIX GRANDIS (Nelson).

MORELOS WREN.

Intermediate in coloration between *P. f. felix* and *P. f. pallidus* (nearer the former, however), but decidedly larger than either (except feet).

^aThe color of the flanks varies much according to condition of the plumage. In fresh plumage the color is deep, in worn plumage paler and duller.

^bSix specimens.

^cThree specimens.

^dNo specimen seen by me, or recorded, from Michoacan; but since a portion of this State is interposed between the State of Guerrero and that portion of Jalisco in which the species is known to occur there can be no doubt of its occurrence in the coast district of Michoacan also.

Adult male.—Length (skins), 137–147 (141.6); wing, 58.5–60 (59.1); tail, 58–64.5 (61.6); exposed culmen, 15–18 (16.2); tarsus, 21–22.5 (21.8); middle toe, 13–15 (13.6).^a

Adult female.—Length (skins), 133–140 (136.5); wing, 54.5–58.5 (56.5); tail, 59–59.5 (59.2); exposed culmen, 15.5–16 (15.7); tarsus, 20–22.5 (21.2); middle toe, 12.5–13 (12.7).^b

South-central Mexico, in State of Morelos (Yautepec; Puente de Ixtla).

Thryothorus felix grandis NELSON, Auk, xvii, July, 1900, 269 (Yautepec, Morelos; coll. U. S. Nat. Mus.).

PHEUGOPEDIUS FELIX PALLIDUS (Nelson).

DURANGO WREN.

Similar to *P. f. felix* but smaller, with upper parts much less rufescent (pileum varying from deep cinnamon to nearly isabella color, back, etc., light olive-brown to nearly broccoli brown), lateral under parts averaging paler and duller (nearest pale clay color), and tail less distinctly barred with dusky.

Adult male.—Length (skins), 121–140 (129.9); wing, 53–58 (56.1); tail, 50.5–55 (53.9); exposed culmen, 14.5–17 (16); tarsus, 20.5–22 (21.3); middle toe, 13–15 (13.6).^c

Adult female.—Length (skins), 120–132 (123.8); wing, 51–55 (52.7); tail, 46–53 (49.7); exposed culmen, 14–15 (14.8); tarsus, 20.5–21 (20.9); middle toe, 12.5–13 (12.8).^d

Western Mexico, in States of Sinaloa (Mazatlan; Escuinapa), Durango (Chacala), and northwestern Michoacan (Los Reyes), and Territory of Tepic (Tepic; San Blas; Santiago).

[*Thryothorus*] *felix* (not of Sclater) BAIRD, Review Am. Birds, 1864, 121, part.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 7, part.

Thryothorus felix LAWRENCE, Mem. Bost. Soc. N. H., iii, 1874, 268, part (Mazatlan, Sinaloa).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 93, part (Mazatlan).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 232, part (Mazatlan).

T[hr]yothorus felix RIDGWAY, Man. N. Am. Birds, 1887, 552, part.

Pheugopedius felix BAIRD, Review Am. Birds, 1864, 126, part (Mazatlan).

[*Thryothorus felix*] *α. felix* RIDGWAY, Bull. Nutt. Orn. Club, iii, Jan., 1878, 11, part (Mazatlan).

Thryothorus felix pallidus NELSON, Proc. Biol. Soc. Wash., xiii, May 29, 1899, 29 (Chacala, Durango; coll. U. S. Nat. Mus.).

PHEUGOPEDIUS FELIX LAWRENCII (Ridgway).

LAWRENCE'S WREN.

Similar to *P. f. pallidus*, but averaging decidedly paler, the back, etc., grayer, lateral under parts very much paler (pale buff or cream

^a Six specimens.

^b Two specimens.

^c Seven specimens.

^d Five specimens.

buff), and sides of head and neck much less strongly streaked with black (the suborbital and auricular regions sometimes almost wholly white).

Adult male.—Length (skins), 132–146 (138.1); wing, 58–61 (59.7); tail, 54–58 (55.9); exposed culmen, 18; tarsus, 22–22.5 (22.1); middle toe, 14–15 (14.4).^a

Adult female.—Length (skins), 131–141 (135); wing, 54–58 (56.1); tail, 52–59 (54.7); exposed culmen, 16.5–18 (17); tarsus, 20–23 (21.3); middle toe, 13–14 (13.4).^b

Maria Madre Island, Tres Marias group, western Mexico.

Thryothorus felix (not of Sclater) GRAYSON, Proc. Bost. Soc. N. H., xiv, 1872, 278 (Tres Marias; habits).—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 268, part (Tres Marias).

Thryothorus felix, *β laurencii* RIDGWAY, Bull. Nutt. Orn. Club, iii, Jan., 1878, 10 (Tres Marias Islands, w. Mexico; coll. U. S. Nat. Mus.).—SALVIN, Ibis, 1878, 196 (crit.).

Thryothorus laurencii SALVIN and GODMAN, Biol. Centr. Am., Aves, i, 1880, 93.—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 232.—NELSON, North Am. Fauna, no. 14, 1899, 57 (Maria Madre I., Tres Marias; habits; song; crit.).

T[hyothorus] laurencii RIDGWAY, Man. N. Am. Birds, 1887, 552.

Thryothorus felix laurencii FOSTER, Bull. U. S. Nat. Mus., no. 40, 1892, p. x.

PHEUGOPEDIUS FELIX MAGDALENÆ (Nelson).

MAGDALENA ISLAND WREN.

Similar to *P. f. laurencii* in slight amount of streaking on side of head and neck, but otherwise similar in coloration to *P. f. pallidus*, or even darker than the average of that form.

Adult male.—Length (skin), 135; wing, 56; tail, 54; exposed culmen, 18; tarsus, 21; middle toe, 13.^c

Maria Magdalena Island, Tres Marias group, western Mexico.

Thryothorus laurencii magdalenæ NELSON, Proc. Biol. Soc. Wash., xii, Jan. 27, 1898, 11 (Maria Magdalena I., Tres Marias group, n. w. Mexico; coll. U. S. Nat. Mus.); N. Am. Fauna, no. 14, 1899, 58 (habits).

Genus THRYOTHORUS Vieillot.

Thriothorus VIEILLLOT, Analyse, 1816, 45 (corrected to *Thryothorus* on p. 70).^d (Type, *Troglodytes arundinaceus* Vieillot, = *Sylvia ludoriciana* Latham.)

Thryothorus (emendation ?) SWAINSON, Classif. Birds, ii, 1837, 319.

Thryoturus (typographical error ?) REICHENBACH, Av. Syst. Nat., 1850, pl. 57.

Hylemathrous MAXIMILIAN, Beitr. Naturg. Bras., iii, 1830, 742, part. (To replace *Thryothorus*,^e rejected on ground of inappropriateness.)

^a Five specimens.

^b Seven specimens.

^c One specimen (the type).

^d See Coues, Auk, xiii, 1896, 345.

^e The species included by Maximilian under *Hylemathrous* (or *Thryothorus*) belong, however, mostly to the genus *Troglodytes*.

Medium-sized Troglodytidae (wing 52–57 mm.) resembling *Phlogothraupis*, but with tail graduated for much less than one-third its length; ninth primary not distinctly, if at all, shorter than secondaries; nostril broader than the narrow, corneous and excurrent operculum; hallux (without claw) longer than outer toe (without claw), and with concealed white spots on rump.

Bill shorter than head, slightly but decidedly decurved, compressed; exposed culmen much shorter than tarsus, about equal to middle toe without claw, straight basally, then gradually but decidedly decurved, or gradually curved from base; gonys decidedly shorter than distance from nostril to tip of maxilla, straight or very faintly concave terminally; maxillary tomium faintly concave, without trace of subterminal notch; depth of bill at frontal antiae greater than its width at same point. Nostril ovate or guttate, overhung by a narrow excurrent corneous operculum, its posterior end in contact with feathering of latero-frontal antiae. Rictal bristles obvious, two of them distinct. Wing rather short, rounded; seventh, sixth, and fifth primaries longest, the fourth but little shorter and slightly longer than eighth, the ninth about equal to secondaries or slightly shorter and decidedly less than twice as long as tenth. Tail about four-fifths as long as wing, rounded, the rectrices broadly rounded at tip. Tarsus longer than middle toe with claw, about two-fifths as long as wing and half as long as tail, the acrotarsium distinctly scutellate, the planta tarsi booted (sometimes, however, with three or more divisions on the lower portion); lateral toes nearly equal (the outer almost inappreciably longer than the inner), both reaching (without claw) to just a little beyond second (subterminal) joint of middle toe, their claws falling decidedly short of base of middle claw; hallux decidedly longer than outer toe, its claw much shorter than the digit; basal phalanx of middle toe coherent to outer toe for about two-thirds its length, to inner for more than half its length.

Coloration.—Above rusty brown to grayish brown, the wings and tail narrowly barred with dusky, the rump with concealed roundish spots of white; a superciliary stripe and under parts buffy or ochraceous, the under tail-coverts barred with black.

Range.—Eastern United States and northeastern Mexico. (Monotypic.)

Nidification.—Nest in cavities, usually of stump, logs, or trees; eggs white, speckled with reddish brown.

KEY TO THE SUBSPECIES OF *THRYOTHORUS LUDOVICIANUS*.

- a. Wing and tail longer (adult male averaging not less than 61.1, tail 52.5; adult female averaging not less than wing 56.9, tail 47.4); upper parts brighter colored (chestnut-brown or chestnut).
- b. Smaller (adult male averaging, wing 61.1, tail 52.5, exposed culmen 16.2, tarsus 22; adult female, wing 56.9, tail 47, exposed culmen 15.7, tarsus 20.8); coloration paler (back, etc., rusty brown or chestnut-brown, under parts buffy white).

to tawny buff). (Eastern United States, except northern portion and peninsula of Florida, west to western Texas.)

Thryothorus ludovicianus ludovicianus (p. 541)

- bb.* Larger^a (adult male averaging) wing 62.6, tail 51.3, exposed culmen 18.5, tarsus 22.5; adult female, wing 58.5, tail 48.6, exposed culmen 17.5, tarsus 21.5; coloration darker, the back, etc., rich to dark chestnut, the under parts tawny clay color or tawny-ochraceous, often barred on sides or flanks with brown or dusky. (Peninsula of Florida.)

Thryothorus ludovicianus miamensis (p. 545)

- aa.* Wing and tail shorter (adult male averaging, wing less than 59, tail less than 50; adult female averaging, wing less than 56, tail less than 47.4); upper parts duller colored (dull chestnut-brown to grayish brown).
b. Darker and more richly colored, the upper parts dull chestnut-brown, the under parts deep clay color or tawny-ochraceous. (State of Nuevo Leon and adjacent parts of Coahuila and Tamaulipas, northeastern Mexico.)

Thryothorus ludovicianus berlandieri (p. 546)

- bb.* Paler and duller colored, the upper parts more grayish brown, the under parts pale clay color to buffy white. (Lower Rio Grande Valley.)

Thryothorus ludovicianus lomitensis (p. 547)

THRYOTHORUS LUDOVICIANUS LUDOVICIANUS (Latham).

CAROLINA WREN.

Adults in spring and summer.—Above plain rusty brown (nearly prouts-brown to chestnut-brown), duller on pileum (especially on forehead), brighter (light chestnut or rufous-chestnut) on rump and upper tail-coverts; rump with concealed roundish subterminal spots of white, the feathers dark slate color or blackish slate basally; wings and tail duller brown than back, narrowly (sometimes indistinctly) barred with dusky, the exterior rectrices and primaries with interspaces between dusky bars much paler (pale buffy or dull whitish, at least in part); middle wing-coverts and some of greater coverts usually with a small triangular terminal spot of white or pale buffy, margined (except terminally) with dusky; a sharply defined and conspicuous superciliary stripe of white or buffy white, bordered above by a narrow black line along lateral margin of pileum and nape; a broad postocular stripe of rufous-brown occupying upper half (approximately) of auricular region, continued (sometimes brokenly) across side of neck; suborbital region and lower portion of auricular region dull white, buffy white, or pale buff, the feathers narrowly edged or margined with dusky, producing a more or less distinctly streaked or squamate effect; malar region, chin, and upper throat plain dull white; rest of under parts plain dull buffy white, more or less strongly tinged with buff on chest, sides, flanks, and anal region, or distinctly buff, deepest on flanks; under tail-coverts buffy whitish or pale buff, broadly barred with black; flanks (occasionally sides also)

^a Specimens provisionally referred here from northern Florida are smaller, instead of larger, than *T. l. ludovicianus*, but in coloration and larger bill agree with *T. l. miamensis*. See footnote on p. 545.

very rarely barred with dusky brown; maxilla horn color or dusky, usually darker terminally; mandible pale horn color; iris brown; legs and feet brownish (in dried skins).

Adults in autumn and winter.—Similar to the spring and summer plumage, but averaging decidedly brighter in color, the upper parts more decidedly rufescent (almost chestnut), triangular white marks at tip of middle and greater wing-coverts more distinct, superciliary stripe more buffy (sometimes decidedly buff), and under parts (except chin and throat) more strongly buffy, approaching tawny-buff or clay color on sides and flanks, the latter sometimes tinged with chestnut.

Young.—Very similar in coloration to spring and summer adults, but texture of plumage much looser; feathers of pileum indistinctly paler medially, and, sometimes, feathers of chest with indistinct dusky margins.

Adult male.—Length (skins), 119–142 (130.5); wing, 54.5–64 (60.4); tail, 45.5–55.5 (50.6); exposed culmen, 15–18 (16.6); tarsus, 20–22.5 (21.5); middle toe, 14–16.5 (15.5).^a

Adult female.—Length (skins), 116–132 (126.3); wing, 55–59.5 (56.9); tail, 45.5–50.5 (47.4); exposed culmen, 14.5–17 (15.7); tarsus, 20–21.5 (20.8); middle toe, 14–16.5 (15.7).^b

^a Twenty-nine specimens.

^b Seventeen specimens.

Specimens from different geographic areas compare in average measurements as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Ten adult males from District of Columbia and Maryland.	61.1	51.7	16.9	21.4	15.5
Ten adult males from Mississippi Valley.	61.2	51	16.4	21.5	15.6
Two adult males from Alabama	61.5	52.5	16.2	22	15.2
Ten adult males from Louisiana	58.3	48.1	16.1	21.9	15.3
Ten adult males from Texas	61.5	50.1	17.1	22.2	15.5
FEMALES.					
Ten adult females from District of Columbia, Maryland, and Virginia	57.7	47.1	15.6	20.9	15
Four adult females from Mississippi Valley	55.8	47.4	16	20.6	15.1
One adult female from Alabama	57	45.5	16	20	14
Seven adult females from Louisiana	56.7	46.1	15.9	21.5	14.7
Ten adult females from Texas	58.1	48	16.6	21.6	14.4

The coloration is very uniform throughout the range indicated above. Louisiana specimens (the shorter wing and tail of which may be to a large degree explained by the fact that most of the specimens examined are in worn summer plumage) are very slightly darker above than others, but not so dark as specimens from northern Florida (provisionally referred to *T. l. miamensis*). Those from Texas are as a rule closely similar to those from the Mississippi Valley and Atlantic States, though some of them, especially from the southwestern portions of the State, as might be expected, incline toward *T. l. berlandieri* in the deeply colored under parts, etc.

Eastern United States, except peninsula of Florida and lower Rio Grande Valley; north (breeding) to southeastern Massachusetts (Naushon), Rhode Island (Middletown), Connecticut (Bridgeport; Chester), Long Island, lower Hudson Valley (Spuyten-Duyvil; Inwood-on-Hudson), eastern and western Pennsylvania, Ohio (more rare in northern portion), Indiana (except extreme northwestern and east-central portions), Illinois (rare and local in northern portion), southern Iowa, etc., irregularly to inland Massachusetts (numerous records), New Hampshire (Rye Beach, accidental), western New York (Buffalo), Ontario (Mount Forest), southern Michigan (Washtenaw County), Wisconsin, and Minnesota (Reeds Creek); west to eastern Montana (divide between Powder and Tongue rivers; Lame Deer), middle Kansas, Oklahoma, and western Texas (as far as Valverde and Tom Green counties); breeding southward to extreme northern Florida (Santa Rosa County^a) and westward along Gulf coast to Texas (except lower Rio Grande Valley and extreme western portions); resident throughout its range.

[*Motacilla troglodytes*] γ Gmelin, Syst. Nat., i, pt. ii, 1788, 994 (based on *Troglodyte de la Louisiane* Buffon, Hist. Nat. Ois., v, 361; *Roitelet, de la Louisiane*, Daubenton, Pl. Enl., vi, pl. 730, fig. 1).

[*Sylvia*] *ludoriciana* Latham, Index Orn., ii, 1790, 548 (based on *Troglodyte de la Louisiane* Buffon, Hist. Nat. Ois., v, 361; *Roitelet, de la Louisiane*, Daubenton, Pl. Enl., vi, pl. 730, fig. 1).

Motacilla ludovisiana Turton, Syst. Nat., i, 1806, 613.

T[roglodytes] ludoricianus Lichtenstein, Verz. Doubl., 1823, 35.—Gray, Gen. Birds, i, 1847, 148.

Troglodytes ludovicianus Bonaparte, Journ. Ac. Nat. Sci. Phila., iv, 1824, 29; Ann. Lyc. N. Y., ii, 1826, 93.—Nuttall, Man. Orn. U. S. and Can., i, 1832, 429.—Audubon, Orn. Biog., ii, 1841, 399, pl. 78; Synopsis, 1839, 74; Birds Am., oct. ed., ii, 1841, 116, pl. 117.—Giraud, Birds Long Is., 1844, 75.—Woodhouse, in Rep. Sitgreaves' Expl. Zuni and Col. R., 1853, 67 (Indian Territory; Texas).—Hoy, Proc. Ac. Nat. Sci. Phila., 1853, 313 (Wisconsin).—Read, Proc. Ac. Nat. Sci. Phila., 1853, 399 (Ohio).—Hoy, Ann. Rep. Smithsonian Inst. for 1864 (1865), 438 (Missouri).

T[roglodytes] ludoricianus Maximilian, Journ. für Orn., 1858, 110 (lower Wabash).

[*Troglodytes*] *ludoricianus* Gray, Hand-list, i, 1869, 189, no. 2567.

Thryothorus ludoricianus Bonaparte, Geog. and Comp. List., 1838, 11; Compt. Rend., xxviii, 1854, 57; Notes Orn. Coll. Delattre, 1854, 41.—Baird, Cat. N. Am. Birds, 1859, no. 265; Review, 1864, 123.—Dresser, Ibis, 1865, 484 (San Antonio, Texas, resident).—Lawrence, Ann. Lyc. N. Y., viii, 1866, 283 (Long Island).—Allen, Bull. Mus. Comp. Zool., iii, 1872, 125, 175 (Topeka, Kansas); Am. Nat., vi, 1872, 265 (Leavenworth, Kansas); Bull. Am. Mus. N. H., i, 1886, 260 (Massachusetts records).—Cooks, Proc. Ac. Nat. Sci. Phila., 1871, 19 (Fort Macon, North Carolina); Check List, 1873, no. 47; 2d ed., 1882, no. 68.—Baird, Brewer, and Ridgway, Hist. N. Am. Birds, i, 1874, pl. 9, fig. 1.—Brewster, Ann. Lyc. N. Y., xi, 1875, 134 (Ritchie Co.,

^aThree specimens from Santa Rosa County, Florida (March), are typical *T. l. ludoricianus*.

West Virginia; habits; song); Bull. Nutt. Orn. Club, iii, 1878, 21 (descr. young); Auk, xviii, 1901, 397 (Naushon, s. Massachusetts, breeding).—MINOR, Bull. Nutt. Orn. Club, i, 1876, 76 (near Boston, July).—BICKNELL, Bull. Nutt. Orn. Club, iii, 1878, 129 (Riverdale, New York, 1 spec., autumn); iv, 1879, 183 (Spuyten-Duyvil, New York, breeding).—BREWER, Bull. Nutt. Orn. Club, iii, 1878, 193 (Lynn, Massachusetts, 1 spec., July 6; Proc. Bost. Soc. N. H., xix, 1878, 302 (New England records).—PURDIE, Bull. Nutt. Orn. Club, iv, 1879, 61 (Saybrook, Connecticut, 1 spec., Nov. 25).—JENCKS, Bull. Nutt. Orn. Club, v, 1880, 237 (Bristol, Rhode Island, 1 spec., Aug. 14, 1880).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 221, part.—COVERT, List Birds Washtenaw Co., Michigan, 1881, 175 (rare straggler).—SPELMAN, Bull. Nutt. Orn. Club, vi, 1881, 54 (Rye Beach, New Hampshire, 1 spec., Aug. 7, 1880).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 60; Orn. Illinois, i, 1889, 90.—SALVIN, Cat. Strickland Coll., 1882, 77 (Reeds Creek, Minnesota).—NEHLING, Bull. Nutt. Orn. Club, vii, 1882, 8 (Harris Co., Texas, resident); Our Native Birds, etc., i, 1893, 141, pl. 26, fig. 6.—BROWN (N. C.), Bull. Nutt. Orn. Club, vii, 1882, 35 (Boerne, Kendall Co., Texas, resident).—SAGE, Bull. Nutt. Orn. Club, viii, 1883, 120 (Portland, Connecticut, 1 spec., Mar. 2); Auk, iii, 1886, 489 (East Hartford, Connecticut, 1 spec., Jan. 15–Mar. 18).—CORY, Auk, i, 1884, 91 (Brookline, Massachusetts, 1 spec., Nov. 4).—DUTCHER, Auk, iii, 1886, 442 (Old Westbury, Long Island, 1 spec., Jan. 30).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 718.—BUTLER, Bull. Brookv. Soc. N. H., no. 2, 1886, 37 (Franklin Co., Indiana, resident); Birds Indiana, 1897, 1115 (whole State except extreme n. w. and e.-centr. portion; common north to Vigo, Tippecanoe, Morgan, and Monroe counties).—LLOYD, Auk, iv, 1887, 297 (Spring Creek, Tom Green Co., Texas; winter resident; 1 pair May 6).—COOKE, Bird Migr. Miss. Val., 1888, 271 (not migratory north of 38°).—EVERMANN, Auk, vi, 1889, 29 (Carroll Co., Indiana, resident).—HASBROUCK, Auk, vi, 1889, 240 (Leon and Satana rivers, etc., Eastland Co., Texas).—CHAPMAN, Auk, vi, 1889, 305 (Englewood, New Jersey; 3 specs., Sept. 20, 1885, and Apr. 24 and Sept. 22, 1886); Bull. Am. Mus. N. H., iii, 1891, 327 (Corpus Christi, Texas).—BATCHELDER, Auk, ix, 1892, 73 (Cambridge, Massachusetts, Sept. 27, 1891; Brookline, Nov. 4, 1883; Lynn, July 6, 1878; Rye Beach, New Hampshire, Aug. 7, 1880).—ATTWATER, Auk, ix, 1892, 343 (San Antonio, Texas, resident).—HOMER, Auk, xi, 1894, 330 (Mercer Co., Pennsylvania, winter).—MCLWRAITH, Birds Ontario, 1894, 392 (Mount Forest, 1 spec., Feb., 1891).—ULREY and WALLACE, Proc. Ind. Ac. Sci., 1895, 158 (Wabash Co., Indiana, resident).—THORNE, Auk, xii, 1895, 218 (divide between Powder and Tongue rivers, Montana, 1 spec., May; Lame Deer, Montana, 2 specs., Aug.).—SAVAGE, Auk, xii, 1895, 314 (Buffalo, New York, 1 spec., Nov. 5, 1894).—(?) WAYNE, Auk, xii, 1895, 365 (Wacissa R., n. v. Florida, breeding).—TAYLOR, Auk, xiii, 1896, 84 (Bridgeport, Connecticut, breeding).—CONKLIN, Auk, xiv, 1897, 97 (Roslyn, Queens Co., New York, breeding; descr. song).—FOOTE, Auk, xiv, 1897, 224 (Inwood-on-Hudson, New York, breeding).—JACOBS, Auk, xv, 1898, 60 (fresh eggs Aug. 21, at Morgantown, West Virginia).—BROCKWAY, Auk, xv, 1898, 192, 274 (Lyme, Connecticut, Dec. 17).—HAZARD, Auk, xvi, 1899, 80 (Peace Dale, Rhode Island, 1 spec.).—STURTEVANT, Auk, xvi, 1899, 284 (Middletown, Rhode Island, breeding).—BEYER, Proc. Louis. Soc. Nat. for 1897–99 (1900), 42 (Louisiana, resident).—CLARK (J. N.), Auk, xix, 1902, 91 (Chester, Connecticut, breeding).—FARWELL, Auk, xix, 1902, 209 (Lake Forest, 30 m. north of Chicago, 1 spec., June, Aug., Oct., Nov., and Dec.).—HOFFMAN, Auk, xix, 1902, 292 (Belmont, Massachusetts, 1 spec., May 4, 1902).—BAILEY (Florence M.), Handb. Birds. W. U. S., 1902, 446.

- [*Thryothorus*] *ludovicianus* COUES, Key N. Am. Birds, 1872, 86.
T[hr]yothorus *ludovicianus* CABANIS, Mus. Hein., i, 1850, 78.—NELSON, Bull. Essex Inst., viii, 1876, 152 (Cook Co., Illinois, rare in summer).—COUES, Key N. Am. Birds, 2d ed., 1884, 277, part.—RIDGWAY, Man. N. Am. Birds, 1887, 550, part.
Phryothorus ludovicianus DURFEE, Auk, xx, 1903, 69 (Fall River, Massachusetts, Sept. 6, 1902).
[Thryothorus] *ludovicianus* BONAPARTE, Consp. Av., i, 1850, 220.
Thriothonus ludovicianus BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 361.
Thryothorus ludovicianus, var. *ludovicianus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 142.
[Thryothorus ludovicianus] a. *ludovicianus* COUES, Birds N. W., 1874, 29; Birds Col. Val., 1878, 168, footnote.
Thryothorus ludovicianus ludovicianus GOODE, Bull. U. S. Nat. Mus., no. 20, 1883, 346.
Thryophilus ludovicianus BOUCARD, Cat. Avium, 1876, 160, no. 4869.
Certhia caroliniana WILSON, Am. Orn., ii, 1810, 61, pl. 12, fig. 5 (e. Pennsylvania; coll. Peale's Mus., no. 7248; ex *Motacilla caroliniana* Bartram, Travels, p. 291).—BONAPARTE, Journ. Ac. Nat. Sci. Phila., iv, 1824, 28.—JARDINE, ed. Wilson's Am. Orn., i, 1832, 210.
Troglodytes arundinaceus VIEILLOT, Ois. Am. Sept., ii, 1807, 55, pl. 108, part (description and plate, but not account of habits^a).
T[hr]iothonus *arundinaceus* LESSON, Rev. Zool., 1840, 263, excl. syn. part.
Thryothorus littoralis VIEILLOT, Nouv. Dict. d'Hist. Nat., xxxiv, 1819, 56.
T[hr]iothonus *louisianæ* LESSON, Rev. Zool., 1840, 264, part.

THRYOTHORUS LUDOVICIANUS MIAMENSIS Ridgway.

FLORIDA WREN.

Most like *T. l. berlandieri*, but coloration still darker and richer, and size much greater (decidedly larger than any other form of the species); upper parts rich chestnut to dark chestnut, the superciliary stripe decidedly buffy (except in worn summer plumage); under parts (except chin and upper throat) deep clay color or tawny-ochraceous, the flanks tinged with chestnut and (sometimes also the sides) barred with chestnut or dusky.

Adult male.—Length (skins), 129.5–146.5 (139.8); wing, 61–66.5 (62.6); tail, 48.5–55.5 (51.3); exposed culmen, 18–19.5 (18.5); tarsus, 21.5–23.5 (22.5); middle toe, 14–16.5 (15.7).^b

Adult female.—Length (skins), 122–142.5 (131.3); wing, 56.5–60.5 (58.5); tail, 46–54.5 (48.6); exposed culmen, 15.5–19 (17.5); tarsus, 20.5–22.5 (21.5); middle toe, 14.5–16 (15.2).^c

Peninsula of Florida; north to Suwanee River, Gainesville, Palatka, etc.^d

^a This applies to *Telmatodytes palustris*!

^b Thirteen specimens.

^c Twelve specimens.

^d Specimens from the Suwanee River and other localities in northern peninsular Florida are much smaller than typical *T. l. miamensis*, averaging even less than *T. l. ludovicianus*, except bill and tarsus; but in coloration they are very much nearer the

Thryothorus ludovicianus (not *Sylvia ludoviciana* Latham) ALLEN, Bull. Mus. Comp. Zool., ii, 1871, 266 (e. Florida; crit.).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, iii, 1874, 503 (Miami, Florida; crit.).—MAYNARD, Birds Florida, 1881, 37, part.

Thryothorus ludovicianus . . . var. *miamensis* RIDGWAY, American Naturalist, ix, Aug., 1875, 469 (Miami R., s. e. Florida; coll. U. S. Nat. Mus.).

Thryothorus ludovicianus miamensis ALLEN, Bull. Nutt. Orn. Club, v, Apr., 1880, 89; Auk, vii, 1890, 115, 116 (Tarpon Springs, Micco, etc., Florida; crit.).—RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 170, 215; Nom. N. Am. Birds, 1881, no. 606; AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 718a.—SCOTT, Auk, v, 1888, 187 (Tarpon Springs, and southward); vi, 1890, 115 (Gulf coast s. Florida).—NEHRLING, Our Native Birds, etc., i, 1893, 146, in text (habits).

T[hryothorus] l[udovicianus] miamiensis COUES, Key N. Am. Birds, 2d ed., 1894, 277.

T[hryothorus] ludovicianus miamensis RIDGWAY, Man. N. Am. Birds, 1887, 550.

Thryothorus miamensis SHARPE, Cat. Birds Brit. Mus., vi, 1881, 222.

Thryothorus ludovicianus miamiensis COUES, Check List, 2d ed., 1882, no. 69.

THRYOTHORUS LUDOVICIANUS BERLANDIERI (Baird).

BERLANDIER'S WREN.

Similar to *T. l. ludovicianus* but slightly smaller, bill larger, upper parts duller brown, and under parts much deeper colored (usually deep clay color or approaching tawny-ochraceous, still deeper on flanks), the sides and flanks frequently barred with brown or dusky.

former, and consequently I refer them to the Florida form. The only alternative would be to separate them subspecifically, since they differ materially from *T. l. miamensis* only in size, while they differ from *T. l. ludovicianus* both in size (wing, tail, and middle toe shorter, but bill longer) and coloration. Average measurements of specimens from the type locality of *T. l. miamensis*, of birds from other parts of southern and central Florida, of a series from the Suwanee River, and of *T. l. ludovicianus*, compare as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Ten adult males of <i>T. l. ludovicianus</i> from District of Columbia and Maryland	61.1	51.7	16.9	21.4	15.5
Ten adult males of <i>T. l. ludovicianus</i> from Mississippi Valley	61.2	51	16.4	21.5	15.6
Eight adult males from Suwanee River, Florida.....	58.7	49.2	17.4	21.5	14.1
Ten adult males of <i>T. l. miamensis</i> from southern and central Florida except Miami.....	62.2	51	18.4	22.6	15.7
Three adult males of <i>T. l. miamensis</i> from Miami, Florida..	64	52.3	19	22	15.5
FEMALES.					
Ten adult females of <i>T. l. ludovicianus</i> from District of Columbia, etc	57.7	47.1	15.6	20.9	15
Four adult females of <i>T. l. ludovicianus</i> from Mississippi Valley.....	55.8	47.4	16	20.6	15.1
Seven adult females from Suwanee River, Florida.....	55.8	48.3	16.3	21	14.3
Nine adult females of <i>T. l. miamensis</i> from southern and central Florida except Miami.....	58.9	49	17.5	21.6	15.4
Three adult females of <i>T. l. miamensis</i> from Miami, Florida.	57.6	47.3	17.3	21.1	14.5

Adult male.—Length (skins), 125.5–134.5 (129.6); wing, 55.5–61.5 (58.8); tail, 46.5–53 (48.8); exposed culmen, 16–19 (17.7); tarsus, 20–22.5 (21.1); middle toe, 14–16 (14.8).^a

Adult female.—Length (skins), 122–133.5 (125.8); wing, 54.5–57.5 (55.7); tail, 45–49 (47.1); exposed culmen, 16.5–18 (17.3); tarsus, 19–22.5 (20.3); middle toe, 13–15 (14.3).^b

Northeastern Mexico, in States of Nuevo Leon (Monterey; Boquillo; Linares; Rodriguez; Montemorelos; Santa Catarina; Cerro le la Silla), western Tamaulipas (Ciudad Victoria), and northeastern Coahuila (Sabinas).

Thryothorus berlandieri BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 362 (Boquillo, Nuevo Leon, n. e. Mexico; coll. U. S. Nat. Mus.; ex Couch, MS.); ed. 1860 (Birds N. Am.), atlas, pl. 83, fig. 1.

Thryothorus berlandieri BAIRD, Rep. U. S. and Mex. Bound. Surv., ii, pt. 2, 1859, 13 (Boquillo and San Diego, Nuevo Leon); Cat. N. Am. Birds, 1859, no. 266; Review Am. Birds, 1864, 124.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 9, fig. 1.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 94, part; Ibis, 1889, 236 (near Ciudad Victoria, Tamaulipas).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 222, part.

[*Thryothorus ludovicianus*.] Var. *berlandieri* COUES, Key N. Am. Birds, 1872, 86.

[*Thryothorus ludovicianus*.] b. *berlandieri* COUES, Birds Northwest, 1874, 29 (synonymy); Birds Col. Val., 1878, 169 (do.).

Thryothorus ludovicianus . . . var. *berlandieri* COUES, Check List, 1873, no. 47a.

Thryothorus ludovicianus, var. *berlandieri* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 144.

Thryothorus ludovicianus berlandieri (not of Coues and Sennett, 1878) RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 170; Nom. N. Am. Birds, 1881, no. 60a, part.—COUES, Check List, 2d ed., 1882, no. 70, part.

[*Thryothorus*] [*ludovicianus*] *berlandieri* COUES, Key N. Am. Birds, 2d ed., 1884, 277.

[*Troglodytes*] *berlandieri* GRAY, Hand-list, i, 1869, 189, no. 2571.

(?) *Thryothorus ludovicianus* (not *Sylvia ludoviciana* Latham) SCLATER, Cat. Am. Birds, 1862, 20 ("Mexico").

[*Thryothorus*] *ludovicianus* RIDGWAY, Man. N. Am. Birds, 1887, 550, part.

THRYOTHORUS LUDOVICIANUS LOMITENSIS Sennett.

LOMITA WREN.

Similar to *T. l. berlandieri* but still duller in color, with under parts paler; back, etc., usually dull grayish prouts brown or warm sepia, superciliary stripe pure white, the under parts pale clay color to nearly white (the sides and flanks frequently barred with brown as in *T. l. berlandieri*).

Adult male.—Length (skins), 123.5–137 (132.8); wing, 56–60 (58.4); tail, 46.5–52 (49.5); exposed culmen, 16.5–18.5 (17.3); tarsus, 20.5–23 (21.5); middle toe, 13.5–16.5 (15.1).^c

Adult female.—Length (skins), 112–134 (125); wing, 52–57.5 (54.1); tail, 43–48 (45.8); exposed culmen, 16–17.5 (16.5); tarsus, 20–21.5 (20.5); middle toe, 14.5–15 (14.6).^b

^a Ten specimens.

^b Seven specimens.

^c Nine specimens.

Lower Rio Grande Valley, in Texas (Lomita Ranch; Hidalgo; Brownsville; Grancano) and northern Tamaulipas (Matamoras; Camargo).

Thryothorus ludovicianus, var. *berlandieri* (not *Thriothonus berlandieri* Baird; ALLEN, Bull. Nutt. Orn. Club, ii, 1877, 109 (Fort Brown, Texas).—MERRILL, Proc. U. S. Nat. Mus., i, 1878, 121 (Fort Brown, Texas; descr. nest and eggs etc.)

Thryothorus ludovicianus berlandieri COUES and SENNETT, Bull. U. S. Geol. and Geog. Surv. Terr., iv, no. 1, 1878, 8 (Hidalgo, Texas).—SENNETT, Bull. U. S. Geol. and Geog. Surv. Terr., v, 1879, 383 (Lomita, Texas; measurements, etc.).—COUES, Check List, 2d ed., 1882, no. 68, part.

T[hryothorus] l[udovicianus] berlandieri COUES, Key N. Am. Birds, 2d ed., 1894, 277, part.

Thryothorus berlandieri SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 94, part.—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 222, part.

Thryothorus ludovicianus lomitis SENNETT, Auk, vii, Jan., 1890, 58 (Lomita Ranch, Hidalgo Co., Texas; coll. G. B. Sennett).—AMERICAN ORNITHOLOGISTS' UNION, Auk, vii, 1890, 64; Check List, 2d ed., 1895, no. 7186.—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 609.

T[hryothorus] ludovicianus RIDGWAY, Man. N. Am. Birds, 1887, 550, part.

Genus THRYOMANES Selater.

Thryomanes SCLATER, Cat. Am. Birds, 1862, 22. (Type, *Troglodytes bewickii* Audubon.)

Small Troglodytidae (wing 45–60 mm.) resembling *Thryothorus*, but hallux (without claw) not longer than outer toe (without claw), bill much more slender and more depressed basally, and nostril much narrower.

Bill slender, compressed anterior to nostrils, depressed basally, usually shorter than head; exposed culmen equal to or longer than middle toe without claw, gradually curved from base, the terminal portion more decidedly so; gonys decidedly shorter than distance from nostril to tip of maxilla, straight throughout or faintly concave terminally, the tip of mandible faintly decurved; maxillary tomium faintly concave anterior to nostril, faintly convex posteriorly, without trace of subterminal notch; depth of bill at frontal antiae about equal to its width at same point. Nostril longitudinal, linear, or narrowly guttate or fusiform, overhung by a rather broad corneous excurrent operculum, its posterior end in contact with feathering of the latero-frontal antiae. Rictal bristles obvious,^a but only two or three distinct and these small. Wing short, rounded; eighth, seventh, and sixth or seventh, sixth, and fifth primaries longest, the ninth not longer than second, usually shorter, sometimes shorter than secondaries; tenth about half as long as ninth or a little more. Tail not less than four-fifths as long as wing, usually nearly as long, sometimes longer, much

^a Except in *T. insularis*.

rounded, the rectrices broadly rounded at tip. Tarsus decidedly longer than exposed culmen, one-third to more than two-fifths^a as long as wing, the acrotarsium distinctly scutellate, the planta tarsi booted; middle toe, with claw, decidedly shorter than tarsus; outer toe slightly longer than inner, reaching (without claw) a little beyond second (subterminal) joint of middle toe, its claw falling short of base of middle claw, the inner toe reaching to but scarcely, if any, beyond subterminal joint of middle toe; hallux (without claw) about as long as outer toe (without claw) but much stouter, its claw decidedly shorter than digit; basal phalanx of middle toe adherent to outer toe for two-thirds its length or more, to inner toe for nearly as much.

Coloration.—Above plain brown or brownish gray, the remiges narrowly and indistinctly (sometimes obsoletely) barred with dusky; middle rectrices gray or grayish brown narrowly barred with dusky, the remaining rectrices largely blackish or dusky with tip blotched with pale gray or whitish, or else (in *T. insularis*) without uniform black or dusky on outer rectrices, their terminal portion irregularly marked with pale brownish gray and dusky; rump with concealed roundish spots of white; a conspicuous superciliary stripe and under parts whitish, the latter sometimes grayish or grayish brown laterally; under tail-coverts more or less barred with dusky.

Nidification.—So far as known, the nest placed in cavities, usually in trees, stumps, or logs, or about buildings; eggs white, speckled with reddish brown.

Range.—Lower Austral and Transition life-zones of North America, and greater part of Mexico, including Yucatan, Socorro Island, and Guadalupe Island. (Four species.)

KEY TO THE SPECIES AND SUBSPECIES OF *THRYOMANES*.

- a. Superciliary stripe sharply defined and conspicuous, white; inner webs of rectrices (except middle pair) black, broadly tipped with mottled gray and white.
- b. Larger (with relatively shorter wing and tail) with much larger bill (exposed culmen 17.5–19). (Yucatan and adjacent parts of Guatemala.)
Thryomanes albinucha (p. 551)
- bb. Smaller (with relatively longer wing and tail), with much smaller bill (exposed culmen 12–16).
- c. Larger, with smaller bill and longer tail; tail 46–64 mm. (*Thryomanes bewickii*.)
- d. Smaller (wing and tail averaging less than 55).
- e. Color of upper parts more reddish brown.
- f. Wing longer, bill and tarsus shorter; color of upper parts more chestnut brown; ^b adult male averaging, wing 54.1, tail 52.3, exposed culmen 13.4, tarsus 17.9; adult female averaging, wing 52.2, tail 51.5, exposed culmen 13.6, tarsus 17.4. (Eastern United States, chiefly south of 40°.) *Thryomanes bewickii bewickii* (p. 552)

^a In the insular species, *T. brevicaudus* and *T. insularis*.

^b It is of course necessary to compare specimens in corresponding seasonal plumage. Specimens in fresh autumnal plumage, or even those taken during winter, are much "warmer" brown than those taken in spring and summer, when the plumage is

- ff.* Wing shorter, bill and tarsus longer; color of upper parts more grayish or olivaceous brown.
- g.* Larger; adult male averaging, wing 53.5, tail 52.3, exposed culmen 15.2, tarsus 20.2; adult female averaging, wing 51.1, tail 50.1, exposed culmen 14.9, tarsus 19.7. (Coast district of Oregon, Washington, and southern British Columbia.)
- Thryomanes bewickii calophonus* (p. 56.)
- gg.* Smaller; adult male averaging, wing 51.9, tail 49.7, exposed culmen 14.7, tarsus 19.2; adult female averaging, wing 49.2, tail 48.1, exposed culmen 14.3, tarsus 18.9. (Middle coast district of California.)
- Thryomanes bewickii spilurus* (p. 56.)
- ee.* Color of upper parts more grayish or olivaceous brown.
- f.* Bill shorter (exposed culmen averaging less than 15 in male, not more than 14.5 in female).
- g.* Upper parts more decidedly brown; bill longer (exposed culmen averaging more than 14).
- h.* Tail longer (averaging 51.5 in male, 49.7 in female); color of upper parts averaging more sooty brown. (California, except central coast and San Diego districts.)
- Thryomanes bewickii drymocoos* (p. 55.)
- hh.* Tail shorter (averaging 49.6 in male, 48.5 in female); color of upper parts averaging more rufescent brown. (Santa Cruz and Santa Rosa islands, California.)
- Thryomanes bewickii nesophilus* (p. 55.)
- gg.* Upper parts more grayish or olivaceous; bill shorter (exposed culmen averaging not more than 14).
- h.* Smaller (adult male averaging, wing 51, tail 52, exposed culmen 12.7, tarsus 19; adult female averaging, wing 49.5, tail 48.5, exposed culmen 12.7, tarsus 18). (Cerro Island, Lower California.)
- Thryomanes bewickii cerroensis* (p. 55.)
- i.* Larger (adult male averaging, wing 52.6, tail 52.8, exposed culmen 14, tarsus 19; adult female averaging, wing 49.8, tail 50, exposed culmen 13.4, tarsus 18.5). (Southern California, northern Lower California, and Santa Catalina Island.)
- Thryomanes bewickii charlestantus* (p. 55.)
- ff.* Bill longer (exposed culmen averaging 15.3 in male, 15 in female). (San Clemente Island, California.)
- Thryomanes bewickii leucophrys* (p. 55.)
- dd.* Larger (wing and tail averaging more than 55).
- e.* Color of upper parts more grayish or olivaceous brown.
- f.* Darker.
- g.* Smaller (adult male averaging, wing 55.8, tail 55.2, exposed culmen 13.9; adult female averaging, wing 55.5, tail 55, exposed culmen 14). (Southeastern Mexico.)
- Thryomanes bewickii bairdi* (p. 56.)
- gg.* Larger (adult male averaging more than the above measurements).
- h.* Wing and bill longer, tail and tarsus shorter (adult male averaging, wing 59.8, tail 56.5, exposed culmen 15.5, tarsus 19.9; adult female averaging, wing 58, tail 53, exposed culmen 15.5, tarsus 18.5); color of upper parts slightly warmer brown. (Western Mexico.)
- Thryomanes bewickii perous* (p. 56.)

more or less faded and worn. In consequence of this seasonal difference the use of color-characters in the key becomes difficult, the summer plumage of the reddish form (*T. bewickii*) being really less reddish than the winter plumage of *T. b. spilurus* and *T. b. calophonus*, which are the most reddish brown of the western races.

- hh. Wing and bill shorter, tail and tarsus longer (adult male averaging, wing 58.2, tail 57.9, exposed culmen 14.6, tarsus 19.9; adult female averaging, wing 56.3, tail 56.3, exposed culmen 14.2, tarsus 19); color of upper parts slightly more olivaceous brown. (Central Mexico.) *Thryomanes bewickii murinus* (p. 559)
- ff. Paler. (Northwestern Mexico and contiguous parts of southwestern United States, from southeastern California to western Texas, north to southern Nevada and Utah and southwestern Colorado.)
- *Thryomanes bewickii eremophilus* (p. 557)
- ee. Color of upper parts more rufescent grayish brown. (Texas, except western portion, and northward to eastern Colorado and middle Kansas.) *Thryomanes bewickii cryptus* (p. 555)
- cc. Smaller, with longer bill and shorter tail; tail 41–44.5 mm. (Guadalupe Island, Lower California.) *Thryomanes brevicaudus* (p. 567)
- aa. Superciliary stripe not sharply defined, inconspicuous, pale buffy; inner webs of rectrices (except middle pair) grayish, narrowly and indistinctly barred with dusky, and without broad whitish or mottled grayish tips. (Socorro Island, western Mexico.) *Thryomanes insularis* (p. 568)

THRYOMANES ALBINUCHA (Cabot).

CABOT'S WREN.

Very similar in coloration of upper parts to *T. bewickii spilurus* and *T. b. calophonus*, but much larger, with relatively shorter wing and tail and longer bill, and under parts more buffy white, with flanks strongly brownish buff.

Adults (sexes alike).—Above plain warm sepia or bistre brown, duller or grayer on pileum (especially the forehead), warmer or more reddish brown (prouts brown) on rump, where the feathers have large concealed spots of white, their basal portion being dark slate color or blackish slate; lesser and middle wing-coverts grayish brown, the latter with paler margins, sometimes with small terminal triangular spots or streaks of whitish; greater coverts and secondaries similar in color to back, indistinctly barred with darker (the bars sometimes obsolete on the former); primaries more broadly and distinctly barred with grayish dusky, the brown interspaces becoming paler (sometimes dull whitish) on exterior quills; middle pair of rectrices grayish brown, narrowly barred or otherwise marked with dusky; inner webs of remaining rectrices dusky, narrowly and indistinctly barred with blackish, their outer webs, except the two outermost, brown, more or less distinctly barred with dusky; four outermost rectrices (on each side) tipped with grayish, this much broader and mixed with white on the exterior rectrix, the second also with tip partly whitish; outer web of lateral rectrix broadly barred with white, the white bars and black interspaces about equal in width; next rectrix with several white spots on terminal third or more, the third more rarely, sometimes even the fourth, also spotted with white terminally; a conspicuous and sharply defined superciliary stripe of white, extend-

ing to sides of neck, the posterior portion margined above by a narrow line of black; a broad postocular stripe of brown occupying upper half (approximately) of auricular region; suborbital region and lower part of auricular region white, the latter narrowly streaked with dusky, the former sometimes with narrow dusky margins to the feathers; sides of neck brown, indistinctly streaked with white, sometimes with black also; under parts white, passing into buffy grayish brown on sides and flanks, the latter deeper (inclining more or less to isabella color or wood brown) and sometimes indistinctly barred with darker; under tail-coverts white, broadly barred with black; maxilla blackish brown with paler tomia; mandible paler, becoming whitish basally; legs and feet deep horn brown.

Adult male.—Length (skins), 122.5–138 (130.7); wing, 54–59 (57.2); tail, 44.5–55.5 (49.2); exposed culmen, 18–19 (18.7); tarsus, 20–22.5 (21); middle toe, 12.5–15.5 (13.8).^a

Adult female.—Length (skins), 119.5–126 (123.2); wing, 53.5–58 (55.7); tail, 42–47 (44.9); exposed culmen, 17.5–19.5 (18.1); tarsus, 19–21.5 (20.4); middle toe, 13–14.5 (13.7).^b

Yucatan (Yalahao; Merida; Chichen-Itza; Puerto Morelos; La Vega) and adjacent portion of Guatemala (Sakluk, near Peten).^c

Troglodytes albinucha CABOT, Proc. Bost. Soc. N. H., ii, 1847, 258 (Yalahao, Yucatan; coll. Dr. S. Cabot).—BAIRD, Review Am. Birds, 1864, 123.

Thryothorus albinucha BAIRD, Review Am. Birds, Oct., 1864, 149 (crit.).—SALVIN, Ibis, 1866, 191 (crit.); 1874, 326 (crit.).—LAWRENCE, Ann. Lyc. N. Y., ix, 1869, 199 (Merida, Yucatan).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 94, pl. 7, fig. 2.—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 224.—CHAPMAN, Bull. Am. Mus. N. H., viii, 1896, 276 (Chichen-Itza, Yucatan).

[*Thryothorus*] *albinucha* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 7.

T[hryothorus] albinucha RIDGWAY, Man. N. Am. Birds, 1887, 550.

(?) *Thryothorus petenicus* SALVIN, Proc. Zool. Soc. Lond., 1863, 187 (Sakluk, near Peten, Guatemala; coll. Salvin and Godman).—BAIRD, Review Am. Birds, 1864, 125 (Sakluk).

(?) [*Troglodytes*] *petenicus* GRAY, Hand-list, i, 1869, 189, No. 2572.

THRYOMANES BEWICKII BEWICKII (Audubon).

BEWICK'S WREN.

Adults in spring and summer.—Pileum, hindneck, back, scapulars, and smaller wing-coverts plain brown (between prouts brown and light bistre or broccoli brown, nearest to the first named), the rump more chestnut-brown, with concealed roundish spots of white, the feathers blackish slate basally; secondaries and greater wing-coverts

^a Six specimens.

^b Four specimens.

^c There is a possibility that the Guatemalan bird may be separable from that of Yucatan. Professor Baird compared the type of *T. petenicus* with that of *T. albinucha* (from Yalahao, Yucatan) and noted certain differences, which may or may not prove constant. (See Review of American Birds, 1864, 149.)

brown, the former distinctly, the latter indistinctly, barred with dusky; primaries dusky, their outer webs edged and spotted with pale brownish; upper tail-coverts and middle rectrices brownish gray, the latter distinctly, the former indistinctly, barred with dusky; a conspicuous and sharply defined superciliary stripe of white or buffy white extending to sides of occiput, the anterior (supraloral) portion narrower and, usually, more grayish; a broad brown postocular stripe, occupying upper half (approximately) of auricular region; suborbital region and lower portion of auricular region grayish white, the latter more or less distinctly streaked with brown; under parts dull grayish white or very pale gray, becoming more decidedly white on abdomen, the sides and flanks more or less tinged with brown; under tail-coverts dull white broadly barred with black; maxilla dusky horn color or blackish with paler tomia; mandible pale horn color basally, more or less extensively dusky terminally; iris brown; legs and feet brownish or horn color.

Adults in autumn or winter.—Similar to the spring and summer plumage but more brightly colored, the upper parts more chestnut-brown, middle rectrices browner (broccoli brown to light bistre), sides and flanks more strongly tinged with brown, the under tail-coverts with ground color brownish white or pale buffy brown.

Young.—Similar to adults, but ground color of middle rectrices brown, like back, etc., feathers of chest (sometimes throat also) more or less distinctly margined or edged with grayish or dusky, and under tail-coverts more brownish and less distinctly barred.

Adult male.—Length (skins), 110–129 (113.2); wing, 51–57 (54.1); tail, 48–56 (52.3); exposed culmen, 12.5–14 (13.4); tarsus, 17–18.5 (17.9); middle toe, 11.5–13 (12.4).^a

Adult female.—Length (skins), 113–129 (117); wing, 51–53.5 (52.2); tail, 48.5–53.5 (51.5); exposed culmen, 13–14.5 (13.6); tarsus, 17–18.5 (17.4); middle toe, 11.5–13 (12.2).^b

^a Twenty specimens.

^b Eight specimens.

Specimens from Atlantic States compare in average measurements with those from the Mississippi Valley as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Ten adult males from Atlantic States (District of Columbia to Florida)	54.8	53	13.4	18	12.6
Ten adult males from interior (Illinois to Tennessee)	53.4	51.5	13.4	17.8	12.2
FEMALES.					
Six adult females from Atlantic States (Pennsylvania to Florida)	52.4	51.3	13.7	17.4	12.1
Two adult females from eastern Texas	51.5	52	13.5	17.5	12.7

Eastern United States, chiefly south of 40°; north, locally, to southern and western Pennsylvania (Cumberland, Bedford, Susquehanna, Fulton, Clinton, and Beaver counties), southern New Jersey, southern Ohio, northern Indiana (north to Wabash, Tippecanoe, and Henry counties), southern Michigan (Washtenaw County), northern Illinois (Cook and Henderson counties), and central Minnesota—accidentally to New Hampshire (Alton); west to eastern border of the Great Plains (eastern Kansas, etc.); south to northern Florida (Wacissa River, winter and spring), and along the Gulf coast to eastern and central Texas^a (Waller County; Brazos, December).

Troglodytes bewickii AUDUBON, Orn. Biog., i, 1831, 96, pl. 18 (St. Francisville, Louisiana; type in coll. U. S. Nat. Mus.); Synopsis, 1839, 74; Birds Am., oct. ed., ii, 1841, 120, pl. 118.—NUTTALL, Man. Orn. U. S. and Can., i, 1832, 434; ed. 2, i, 1840, 489, part.—LESSON, Rev. Zool., 1840, 264.—WOODHOUSE, Rep. Sitgreaves' Expl. Zuni and Col. R., 1853, 67 (Indian Territory).

T[roglodytes] bewickii GRAY, Gen. Birds, i, 1847, 158.—TRIPPE, Proc. Essex Inst., vi, 1871, 115 (Minnesota, breeding).

[*Troglodytes*] *bewickii* GRAY, Hand-list, i, 1869, 190, no. 2602, part.

Thryothorus bewicki BONAPARTE, Geog. and Comp. List, 1838, 11.—ABBOTT, Am. Nat., x, 1876, 237, 238 (New Jersey).—LOOMIS, Bull. Nutt. Orn. Club, iv, 1879, 211 (Chester Co., South Carolina, resident).—COUES, Check List, 2d ed., 1882, no. 71.—STONE, Auk, viii, 1891, 245 (Wynnewood, New Jersey, 1 spec., Apr. 12, 1891).—BRIMLEY, Auk, x, 1893, 244 (Raleigh, North Carolina, winter).

[*Thryothorus*] *bewicki* BONAPARTE, Consp. Av., i, 1850, 221.

Thryothorus bewickii BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 363, part (Carlisle, Pennsylvania).

Thryothorus bewickii BAIRD, Cat. N. Am. Birds, 1859, no. 267, part.—COUES, Proc. Bost. Soc. N. H., xii, 1868, 108 (South Carolina); Am. Nat., x, 1876, 48 (mountains of Virginia, breeding); Check List, 1873, no. 48; Birds Northwest, 1874, 31, part.—TURNBULL, Birds E. Pennsylvania and New Jersey, 1869, 27; Philadelphia ed., p. 20.—(?) SNOW, Birds Kansas, 1873, 6; 3d ed., 1875, 4 (Kansas).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 9, fig. 3.—LANGDON, Birds Cincinnati, 1877, 4 (rare sum. resid.; Brookville, Indiana, 1 spec.).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 225 (excl. references Dresser and Butcher).—COVERT, Annot. List Birds, Washtenaw Co., Michigan, 1881, 176 (1 spec., June 3, 1878).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 719.—BREWSTER, Auk, iii, 1886, 176 (Asheville, etc., w. North Carolina, breeding; habits; song).—BUTLER, Bull. Brookv. Soc. N. H., no. 2, 1886, 37 (Franklin Co., Indiana, summer resident); Birds Indiana, 1897, 1116 (north to Tippecanoe, Wabash, and Henry counties; resident north to Knox Co.; habits).—CHAPMAN, Auk, v, 1888, 324 (Aiken, South Carolina, Nov.).—COOKE, Bird Migr. Miss. Val., 1888, 719 (Gainesville, Texas, Kansas, Nebraska, s. Minnesota, etc.; wintering from s. Illinois southward).—RIDGWAY, Orn. Illinois, i, 1889, 92.—LOOMIS, Auk, vii, 1890, 130 (Oolenoy Valley, South Carolina, June, July); viii, 1891, 172 (Chester Co., South Carolina, resident), 333 (Caesars Head, South Carolina, breeding).—GOSS, Hist. Birds Kansas, 1891, 610.—DURY and KELLOGG, Journ. Cinc. Soc. N. H., —, —, 43 (near Cincinnati, Ohio, 3 specs., Apr. and May,

^a Apparently not breeding in the extreme southern parts of its range; nonmigratory over greater part of its range.

- 1891).—NEHRLING, Our Native Birds, etc., i, 1893, 148.—WAYNE, Auk, xii, 1895, 367 (Wacissa R., n. w. Florida, spring and winter).—ULREY and WALLACE, Proc. Ind. Ac. Sci., 1895, 158 (Wabash, Indiana, common summer resident).—HADLEY, Proc. Ind. Ac. Sci., 1897, 196 (Richmond, Wayne Co., Indiana).—DEARBORN, Prelim. List Birds Belknap and Merrimac counties, N. H., 1898, 32 (Alton, New Hampshire, 1 spec., Apr. 25, 1890).—RHODES, Auk, xvi, 1899, 313 (top of Tuscarora Mt., Fulton Co., Pennsylvania, breeding; Beaver, Pennsylvania, 1 spec., Apr. 27, 1898; Round Island, Pennsylvania, 2 specs., May 27, 1896).
- [*Thryothorus*] *bewickii* COUES, Key N. Am. Birds, 1872, 86.
- Thryothorus bewickii*, var. *bewickii* BAIRD, Review Am. Birds, Oct., 1864, 126.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 145.
- T*[*hryothorus*] *bewickii* RIDGWAY, Ann. Lyc. N. Y., x, 1874, 367 (s. and centr. Illinois, resident); Man. N. Am. Birds, 1887, 557.—NELSON, Bull. Essex Inst., v, 1876, 96, 152 (Chicago, Illinois, rare, summer resident).
- T*[*hryothorus*] *bewickii* COUES, Key N. Am. Birds, 2d ed., 1884, 277.
- [*Thryothorus bewickii*] a. *bewickii* COUES, Birds Northwest, 1874, 31.
- Thryothorus bewickii bewickii* GOODE, Bull. U. S. Nat. Mus., no. 20, 1883, 346.
- [*Thryomanes bewickii leucogaster*] a. *bewickii* COUES, Birds Col. Val., 1878, 169 (synonymy).
- Thryomanes bewickii* RIDGWAY, Bull. Nutt. Orn. Club, ii, July, 1877, 60; iii, 1878, 163 (Mount Carmel, Illinois; habits); vii, 1882, 19 (Wheatland, Indiana, common), 253 (Arlington, Virginia, 1 spec., Apr. 10, 1882); Nom. N. Am. Birds, 1881, no. 61.
- Thryomanes bewickii* AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 124.—BEYER, Proc. Louis. Soc. Nat. for 1897-1899 (1900), 42 (Louisiana, winter resident).
- Thryomanes bewickii bewickii* OBERHOLSER, Proc. U. S. Nat. Mus., xxi, Nov. 19, 1898, 423 (monogr.).
- T*[*elmatodytes*] *bewickii* CABANIS, Mus. Hein., i, 1850, 78, footnote.
- [*Telmatodytes*] *bewickii* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1882, 48, part.

THRYOMANES BEWICKII CRYPTUS Oberholser.

TEXAN WREN.

Similar to *T. b. bewickii* but decidedly larger, tail relatively longer (averaging equal to or longer than wing instead of distinctly shorter), and coloration grayer above (broccoli brown to a more decided brown hue), and whiter beneath, with blackish bars on under tail-coverts much narrower.

Adult male.—Length (skins), 121-135 (127.4); wing, 55-60 (57); tail, 54.5-60 (57.7); exposed culmen, 13.5-14.5 (13.9); tarsus, 18.5-20 (18.8); middle toe, 12-12.5 (12.1).^a

Adult female.—Length (skins), 118-133 (121.8); wing, 51-55.5 (53.2); tail, 50-57 (53.8); exposed culmen, 13-14.5 (13.7); tarsus, 18-20 (18.5); middle toe, 12-13 (12.4).^a

Texas, except extreme western portion, northward to Oklahoma (Fort Reno), middle and southwestern Kansas, and eastern Colorado; south-

^a Ten specimens.

ward through Mexican States of Tamaulipas (Santa Rosalia; Mier Nuevo Laredo; Camargo; Soto la Maria) and Nuevo Leon (Rodriguez China; Guyapuco).

Thryothorus bewickii (not *Troglodytes bewickii* Audubon) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 363, part (Nuevo Leon; Santa Rosalia, Tamaulipas; Devils R. and Ringgold Barracks, Texas).

Thryothorus bewickii BAIRD, Rep. U. S. and Mex. Bound. Surv., ii, pt. 2, 1859, 13, part (Guyapuco, Nuevo Leon; Santa Rosalia, Tamaulipas; Devils R., Texas); Cat. N. Am. Birds, 1859, no. 267, part.—DRESSER, Ibis, 1865, 464 (San Antonio, Texas).—BUTCHER, Proc. Ac. Nat. Sci. Phila., 1868, 149 (Laredo, Texas).

Thryothorus bewickii COUES and SENNETT, Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1898, 9 (Brownsville and Hidalgo, Texas).—(?) NEHRING, Bull. Nutt. Orn. Club, vii, 1882, 8 (Harris Co., Texas, resident).

Troglodytes bewickii (not of Audubon) HEERMANN, Rep. Pacific R. R. Surv., i, pt. iv, 1859, 41 (Fort Clark, Texas, breeding).

[*Thryothorus*] *leucogaster* (not *Troglodytes leucogastra* Gould^a) BAIRD, Review Am. Birds, Aug., 1864, 122 (diagnosis).

[*Thryothorus bewickii*.] Var. *leucogaster* BAIRD, Review Am. Birds, Aug., 1864, 126 (diagnosis).

Thryothorus bewickii, var. *leucogaster* BAIRD, Review Am. Birds, Aug., 1864, 127, excl. syn. (San Antonio and Ringgold Barracks, Texas; Santa Rosalia, Tamaulipas; Guyapuco, Nuevo Leon).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 147, part.

Thryothorus bewickii leucogaster COUES, Check List, 2d ed., 1882, no. 72, part.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xiv, 1897, 131, part.—(?) COOKE, Bull. Col. Agric. Coll., no. 37, 1897, 120 (Fort Lyon, Pueblo, Burlington, and Loveland, Colorado); no. 44, 1898, 169 (Rouse Junction, Colorado, breeding; Colorado Springs, 1 spec., May 1, 1879).

T[*hryothorus*] b[ewickii] *leucogaster* COUES, Key N. Am. Birds, 2d ed., 1884, 278, part.

Thryomanes bewickii var. *leucogaster* RIDGWAY, Proc. U. S. Nat. Mus., i, Oct. 9, 1878, 121, excl. syn. part.—MERRILL (J. C.), Proc. U. S. Nat. Mus., i, 1878, 122 (Fort Brown, Texas: descr. nest and eggs and song).

Thryomanes bewickii leucogaster RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 170, 215, part; Nom. N. Am. Birds, 1881, no. 61b, part.—BROWN (N. C.), Bull. Nutt. Orn. Club, vii, 1882, 35 (Boerne, Kendall Co., Texas, resident).—(?) BECKHAM, Auk, ii, 1885, 140 (Pueblo, Colorado).

Thryomanes bewickii leucogaster AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 124, part.

T[*hryomanes*] b[ewickii] *leucogaster* BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 447, part.

[*Thryothorus bewickii*] b. *leucogaster* COUES, Birds Northwest, 1874, 31, part (in synonymy).

[*Thryomanes bewickii leucogaster*] b. *leucogaster* COUES, Birds Col. Val., 1878, 168, part (in synonymy).

Thryothorus bairdi SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 95, part (Colorado; Rio Grande Valley; Tamaulipas; Nuevo Leon).—SHARP, Cat. Birds Brit. Mus., vi, 1881, 226, part (in synonymy).

^a = *Nannorchilus leucogaster*, erroneously identified with the present bird by Professor Baird. See Coues, Auk, xiii, 1896, 345; American Ornithologists' Union Committee, Auk, xiv, 1897, 131; Oberholser, Proc. U. S. Nat. Mus., xxi.

- Thryothorus bewickii bairdi* (not *Thryothorus bairdi* Salvin and Godman) Goss, Auk, iii, 1886, 115 (s. w. Kansas; resident).
- Thryothorus bewickii bairdi* RIDGWAY, Proc. U. S. Nat. Mus., viii, Sept. 2, 1885, 354, part.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 719b., part.—HANCOCK, Bull. Ridgw. Orn. Club, no. 2, 1887, 22 (near Corpus Christi, Texas, breeding; notes).—COOKE, Bird Migr. Miss. Val., 1888, 271 (s. w. Kansas).—HASBROUCK, Auk, vi, 1889, 240 (Eastland Co., Texas).—Goss, Hist. Birds Kansas, 1891, 611 (s. w. and middle Kansas; resident).—ATTWATER, Auk, ix, 1892, 343 (San Antonio, Texas; resident; nesting habits).—CARROLL, Auk, xvii, 1900, 348 (Refugio Co., Texas; resident).
- T[hyothorus] bewickii bairdi* RIDGWAY, Man. N. Am. Birds, 1887, 551, part.
- Thryothorus bewickii bairdi* LLOYD, Auk, iv, 1887, 297 (Tom Green and Concho counties, Texas; resident).
- Thryothorus bewickii murinus* (not *Thryothorus murinus* Hartlaub) RIDGWAY, Auk, iv, Oct., 1887, 350, part (crit.).—BECKHAM, Proc. U. S. Nat. Mus., x, 1888, 691 (Corpus Christi, etc., Texas; habits).
- Thryomanes bewickii cryptus* OBERHOLSER, Proc. U. S. Nat. Mus., xxi, no. 1153, Nov. 19, 1898, 425 (San Antonio, Texas; coll. U. S. Nat. Mus.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xviii, 1901, 301 (check list no. 719c.).
- T[hyomanes] b[ewickii] cryptus* BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 447.

THRYOMANES BEWICKII EREMOPHILUS Oberholser.

DESERT WREN.

Similar to *T. b. cryptus*, but decidedly grayer above (hair brown, approaching broccoli brown in some winter specimens); upper tail-coverts and middle rectrices clearer gray; under parts still whiter, the sides more faintly tinged with brownish gray, the under tail-coverts more purely white and narrowly barred with black; wing and tail slightly longer, bill decidedly longer, middle toe shorter.

Adult male.—Length (skins), 120–136.5 (128.8); wing, 55.5–61 (57.7); tail, 55–64 (58.2); exposed culmen, 14–15 (14.8); tarsus, 18–19 (18.5); middle toe, 11–12 (11.4).^a

Adult female.—Length (skins), 114.5–129 (120.6); wing, 51.5–57.5 (54.7); tail, 51–59 (55.2); exposed culmen, 13.5–15.5 (14.3); tarsus, 17–19 (18.4); middle toe, 10–12 (11.3).^a

Extreme western portions of Texas (to central parts in winter) and westward through New Mexico and Arizona to desert region of southeastern California (Resting Spring; White Mountains; Argus Mountains; Furnace Creek; Death Valley); north to southern Nevada (St. Thomas), southern Utah (Santa Clara; Toquerville; Washington; Iron City), and southwestern Colorado; south through States of Chihuahua, Durango (Durango City and Papasquero, breeding), and Coahuila (Saltillo, April; Sabinas, breeding) to central Zacatecas (Valparaiso Mountains, December).

Thriothorus bewickii (not *Troglodytes bewickii* Audubon) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 363, part (Los Nogales, Sonora).

^a Ten specimens.

- Thryothorus bewickii* BAIRD, Rep. U. S. and Mex. Bound. Surv., ii, pt. 2, 1859, 13, part (Los Nogales); Cat. N. Am. Birds, 1859, no. 267, part.—COUES, Proc. Ac. Nat. Sci. Phila., 1866, 78 (Arizona).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 101 (Apache, etc., Arizona).
- Thryothorus bewicki* COUES, Ibis, 1865, 164, in text (Fort Whipple, Arizona).
- [*Thryothorus*] *leucogaster* (not *Troglodytes leucogastra* Gould) BAIRD, Review Am. Birds, Aug., 1864, 122, part (diagnosis).
- [*Thryothorus bewickii*.] Var. *leucogaster* BAIRD, Review Am. Birds, Aug., 1864, 126, part (diagnosis).
- Troglodytes bewickii*, var. *leucogaster* BAIRD, Review Am. Birds, Aug., 1864, 127, part.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 147, part; iii, 1874, 504 (Toquerville, s. Utah).
- Thryothorus leucogaster* COOPER, Am. Nat., iii, 1869, 474, 479.
- Thryothorus bewickii* . . . var. *leucogaster* COUES, Check List, 1873, no. 48a.—YARROW and HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 9 (Iron City and Toquerville, s. Utah).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 41 (s. Utah).
- Thryothorus bewicki* . . . var. *leucogaster* HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 155 (Arizona); Zool. Expl. W. 100th Merid., 1875, 183 (Iron City, Washington, and Toquerville, s. Utah; Camp Apache, Camp Crittenden, and Gila R., Arizona).
- Thryothorus bewicki*, var. *leucogaster* HENSHAW, Zool. Expl. W. 100th Merid., 1875, pl. 1, fig. 1.
- [*Thryothorus bewickii*] b. *leucogaster* COUES, Birds Northwest, 1874, 31, part (in synonymy).
- Thryothorus bewicki leucogaster* COUES, Bull. Nutt. Orn. Club, vii, 1882, 52 (Fort Whipple to Grand Canyon, Arizona; habits; descr. nest and eggs); Check List, 2d ed., 1882, no. 72, part.
- T[*hryothorus*] b[ewicki] *leucogaster* COUES, Key N. Am. Birds, 2d ed., 1884, 278, part.
- Thryothorus bewickii leucogaster* AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xiv, Jan., 1897, 131, part.
- Thryomanes bewicki leucogaster* COUES, Birds Col. Val., 1878, 169, excl. syn. part.—BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 82 (Chiricahua Mts., Arizona).
- Thryomanes bewickii leucogaster* AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 124, part.
- T[*hryomanes*] b[ewickii] *leucogaster* BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 447.
- Thryothorus bewickii*, var. *spilurus* (not *Troglodytes spilurus* Vigors) BAIRD, Review Am. Birds, 1864, 126, part (Los Nogales, Sonora).
- Thryothorus bairdi* SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 95, part (in synonymy).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 226, part (in synonymy).
- Thryothorus bewickii bairdi* (not *Thryothorus bairdi* Salvin and Godman) RIDGWAY, Proc. U. S. Nat. Mus., viii, Sept. 2, 1885, 354, part.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 719b, part.—ANTHONY, Auk, ix, 1892, 368 (Apache and Hachita, s. w. New Mexico).—ALLEN, Bull. Am. Mus. N. H., v, 1893, 41 (San Diego, n. w. Chihuahua).—FISHER (A. K.), North Am. Fauna, no. 7, 1893, 134 (Mojave Desert, Death Valley, Panamint Mts., etc., s. e. California; Ash Meadows, Pahrump Valley, and Vegas Valley, s. Nevada; Santa Clara Valley, s. Utah).
- T[*hryothorus*] *bewickii bairdi* RIDGWAY, Man. N. Am. Birds, 1887, 551, part.
- Thryothorus bewicki murinus* (not *Thryothorus murinus* Hartlaub) RIDGWAY, Auk, iv, Oct., 1887, 350, part (crit.).

Thryothorus bewickii murinus SCOTT, Auk, v, 1888, 163 (Santa Catalina and Pinal Mts., Arizona, up to 6,000 ft.).—ALLEN, Auk, v, 1888, 163 (crit.).

Thryomanes bewickii eremophilus OBERHOLSER, Proc. U. S. Nat. Mus., xxi, no. 1153, Nov. 19, 1897, 427 (Big Hatchet Mts., Grant Co., New Mexico; coll. U. S. Nat. Mus.).

Thryomanes bewickii eremophilus GRINNELL, Check List Birds Calif., 1902, 69.

THRYOMANES BEWICKII MURINUS (Hartlaub).

HARTLAUB'S WREN.

Similar to *T. b. bairdi*, but decidedly larger; coloration of upper parts darker and browner, and under tail-coverts more heavily barred.

Adult male.—Length (skins), 121–138 (129.1); wing, 56–60 (58.2); tail, 54–60 (57.9); exposed culmen, 14–16 (14.6); tarsus, 19–21 (19.9); middle toe, 13–15 (13.8).^a

Adult female.—Length (skins), 123–131 (126.3); wing, 56–57 (56.3); tail, 55–58 (56.3); exposed culmen, 13.5–15 (14.2); tarsus, 19; middle toe, 12.5–13 (12.8).^b

South-central Mexico, in States of Hidalgo (Tula; Real del Monte; Pachuca; Irolo^c), Mexico (Tlalpam; Amecameca), Morelos (Tetela del Volcan), Tlaxcala (Apixaco), and San Luis Potosi (San Luis Potosi).

Thryothorus murinus (not *Troglodytes murinus* Hartlaub, 1844) HARTLAUB, Rev. et Mag. de Zool., iv, 1852, 4 (Rio Frio, Mexico; coll. Bremen and Hamburg museums).—BAIRD, Review Am. Birds, 1864, 123.

Thryothorus bewickii murinus RIDGWAY, Auk, iv, Oct., 1887, 350, part (crit.).

Thryomanes bewickii murinus OBERHOLSER, Proc. U. S. Nat. Mus., xxi, Nov. 19, 1898, 431 (monogr.).

(?) *Thryothorus bewickii* (not *Troglodytes bewickii* Audubon) DUGÈS, La Nature-leza, i, 1869, 139 (Guanajuato).

[*Thryothorus*] *bewickii* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 7, part.

Thryothorus bairdi SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 95, part (Valley of Mexico; Guanajuato?).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 226, part (in synonymy).

THRYOMANES BEWICKII BAIRDI (Salvin and Godman).

BAIRD'S WREN.

Similar to *T. b. eremophilus*, but smaller, darker, and browner.

Adult male.—Length (skins), 123–126 (124.7); wing, 54–56 (55.8); tail, 54–56 (55.2); exposed culmen, 13.5–15 (13.9); tarsus, 18–20 (19); middle toe, 13.^d

^a Eight specimens.

^b Three specimens.

^c A specimen from the locality mentioned, while agreeing in larger measurements with the present form, is much browner above than those representing other localities mentioned, being exactly similar in coloration of the upper parts to *T. b. bairdi*; but Irolo is near the edge of the latter's range, and the intermediate character of the specimen may thus be accounted for.

^d Four specimens.

Adult female.—Length (skins), 123–126 (124.5); wing, 55–56 (55.5); tail, 54–56 (55); exposed culmen, 13.5–14.5 (14); tarsus, 19–20 (19.5); middle toe, 13–13.5 (13.2).^a

Southeastern Mexico, in States of Oaxaca (Tamazulapam; Oaxaca City), southwestern Vera Cruz (Perote; Maltrata), and southern Puebla (Chalchicomula; Tehuacan; Atlixco).

Thryothorus bewickii (not *Troglodytes bewickii* Audubon) SCLATER, Proc. Zool. Soc. Lond., 1859, 372 (Oaxaca).

[*Thryothorus*] *bewickii* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 7, part.

[*Telmatodytes*] *bewickii* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1882, 44, part (Oaxaca).

Thryothorus bewickii, var. *leucogaster* (not *Troglodytes leucogastra* Gould) LAWRENCE, Bull. U. S. Nat. Mus., no. 4, 1876, 14 (Puente Colorado, Puebla).

[*Thryothorus bewickii*] b. *leucogaster* COUES, Birds Northwest, 1874, 31, part (in synonymy).

Thryomanes bewickii leucogaster COUES, Birds Col. Val., 1878, 169, part (in synonymy).

Thryothorus bairdi SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, sig. 12, Apr. 1880, 95, part (type from Oaxaca City, Oaxaca, s. w. Mexico; coll. Salvin and Godman).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 226, pl. 13, end syn. part (Puebla, Mexico).

Thryothorus bewickii bairdi (not of Ridgway, 1885) FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 136 (Puebla).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 719b, part.

[*Thryothorus*] *bewickii bairdi* RIDGWAY, Man. N. Am. Birds, 1887, 551, part.

Thryomanes bewickii bairdi OBERHOLSER, Proc. U. S. Nat. Mus., xxi, Nov. 19, 1898, 433 (monogr.).

THRYOMANES BEWICKII PERCUNUS Oberholser.

JALISCO WREN.

Similar to *T. b. murinus*, but wing and bill longer, tail and tarsus slightly shorter, and coloration averaging slightly darker.

Adult male.—Length (skins), 123.5–139 (129); wing, 58–62 (60.1); tail, 54.5–58.5 (56.3); exposed culmen, 15–16 (15.5); tarsus, 18–20 (19.1); middle toe, 12–14 (13.2).^b

Adult female.—Length (skins), 130–130.5 (130.2); wing, 54–58 (56); tail, 53; exposed culmen, 15.5; tarsus, 18.5; middle toe, 12–12.5 (12.2).^c

Western Mexico, in States of Jalisco (Etzatlan; Zapotlan; Ocotlan; Guadalajara; Tonila) and Zacatecas (Plateado); accidental in Puebla (Puente Colorado, August 3).^c

[*Thryothorus*] *bewickii* (not *Troglodytes bewickii* Audubon) SCLATER and SALVIN, Nom. Av. Neotr., 1873, 7, part.

Thryothorus bewickii, var. *leucogaster* (not *Troglodytes leucogastra* Gould) LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 268 (Guadalajara, Jalisco).

^aTwo specimens.

^bEight specimens.

^cPuente Colorado is erroneously located by Mr. Oberholser in the State of Guerrero.

Thryothorus bairdi SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 95, part (Guadalajara; Puente Colorado, Puebla).

[Thryothorus] bewickii bairdi (not *Thryothorus bairdi* Salvin and Godman) RIDGWAY, Man. N. Am. Birds, 1887, 551, part (Guadalajara, Jalisco; see footnote on page cited).

Thryothorus bewickii spilurus (not *Troglodytes spilurus* Vigors) AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 719a, part (western Mexico).

Thryomanes bewickii percnus OBERHOLSER, Proc. U. S. Nat. Mus., xxi, no. 1153, Nov. 19, 1898, 429 (Etzatlan, Jalisco, s. w. Mexico; coll. U. S. Nat. Mus.).

THRYOMANES BEWICKII CHARIENTURUS Oberholser.

SAN DIEGO WREN.

Similar to *T. b. percnus*, but decidedly smaller (except length of tarsus), and color of upper parts duller, or slightly olivaceous, brown.

Adult male.—Length (skins), 112–128 (120.1); wing, 51–55 (52.7); tail, 50–55 (52.8); exposed culmen, 13–15 (14); tarsus, 18–20 (19); middle toe, 12–13 (12.4).^a

Adult female.—Length (skins), 107–126 (115.3); wing, 46.5–52 (49.9); tail, 46–53 (50); exposed culmen, 12–14.5 (13.4); tarsus, 18–19 (18.5); middle toe, 11.5–13 (12.1).^b

Southern coast district of California, in Los Angeles, Riverside, San Bernardino, and San Diego counties, and northern Lower California, as far southward as latitude 28°; Santa Catalina Island.

Thryomanes bewickii spilurus (not *Troglodytes spilurus* Vigors) BELDING, Proc. U. S. Nat. Mus., v, 1883, 528 (San Quentin Bay, Lower California).

Thryothorus bewickii spilurus AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 719a, part.—(?) EVERMANN, Auk, iii, 1886, 185 (Ventura Co., California, resident).—FISHER (A. K.), North Am. Fauna, no. 7, 1893, 134, part (San Bernardino, s. California).—ANTHONY, Zoe, iv, 1893, 245 (San Pedro Martir

^a Fourteen specimens.

^b Thirteen specimens.

Specimens from different localities compare in average measurements as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Four adult males from Los Angeles and Riverside counties, California	52.7	53.7	13.6	19.5	12.4
One adult male from San Diego County, California	52	52	14	19	12
Three adult males from northern Lower California	54	53	14.2	18.8	12.3
Two adult males from San Quentin Bay, Lower California ..	52.2	52.2	13.7	18.2	12.5
Four adult males from Santa Catalina Island, California...	51.9	51.7	14.7	19.5	12.6
FEMALES.					
Nine adult females from Los Angeles, Riverside, and San Bernardino counties	50.1	50.2	13.1	18.5	12.1
Two adult females from northern Lower California	50.5	51	14.2	18.7	12
One adult female from San Quentin Bay	50	49	13	18.5	12
One adult female from Santa Catalina Island	47	47	14	18.5	12

Mts., Lower California); Auk, xii, 1895, 143 (San Fernando, Lower California, breeding).—GRINNELL (J.), Pub. 2, Pasadena Ac. Sci., 1898, 4 (Los Angeles Co., California, resident); Auk, xv, 1898, 236 (Santa Catalina Island, California, Dec.).

T[hryothorus] bewickii spilurus RIDGWAY, Man. N. Am. Birds, 1887, 551, part.
Thryomanes bewickii charienturus OBERHOLSER, Proc. U. S. Nat. Mus., xxi, no. 1153, Nov. 19, 1898, 435 (Nachoguero Valley, Lower California; coll. U. S. Nat. Mus.); xxii, 1900, 233 (Santa Catalina I.; crit.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xviii, 1901, 307 (check list no. 7194).
T[hryomanes] b[ewickii] charienturus BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 447.

Thryomanes bewickii charienturus GRINNELL, Check List Birds Calif., 1902, 69.

THRYOMANES BEWICKII CERROENSIS (Anthony).

CERROS ISLAND WREN.

Similar to *T. b. charienturus*, but slightly smaller (the bill decidedly so) and coloration slightly paler and grayer.

Adult male.—Length (skin), 121; wing, 51; tail, 52; tarsus, 18; middle toe, 12.^a

Adult female.—Length (skins), 114–119 (116.5); wing, 48–51 (49.5); tail, 47–50 (48.5); exposed culmen, 12.5–13 (12.7); tarsus, 18; middle toe, 12.^b

Cerros Island, Lower California.

Thryomanes bewickii spilurus (not *Troglodytes spilurus* Vigors) BELDING, Proc. U. S. Nat. Mus., v, 1883, 531 (Cerros I.).

Thryothorus bewickii bairdi (not *Thryothorus bairdi* Salvin and Godman) Townsend (C. H.), Proc. U. S. Nat. Mus., xiii, 1890, 138 (Cerros I.).

Thryothorus cerroensis ANTHONY, Auk, xiv, Apr., 1897, 166 (Cerros I., Lower California; coll. A. W. Anthony).

Thryomanes bewickii cerroensis OBERHOLSER, Proc. U. S. Nat. Mus., xxi, Nov. 19, 1898, 445 (monogr.).

THRYOMANES BEWICKII NESOPHILUS Oberholser.

SANTA CRUZ WREN.

Similar to *T. b. charienturus*, but slightly browner (the flanks decidedly so), tail shorter, and bill longer.

Adult male.—Length (skins), 114–126.5 (121.1); wing, 51.5–53.5 (52.5); tail, 46.5–51.5 (48.9); exposed culmen, 14.5–15.5 (15); tarsus, 19–19.5 (19.3); middle toe, 11.5–12.5 (12.2).^c

Adult female.—Length (skins), 115–119 (117); wing, 50–52 (51); tail, 48–49 (48.5); exposed culmen, 14.5; tarsus, 19.5–20 (19.7); middle toe, 11.5–12.5 (12).^d

^a One specimen, with tip of maxilla broken off.

^b Two specimens. Two other specimens (including the type) examined, but these with sex undetermined.

^c Five specimens.

^d Two specimens.

Santa Cruz and Santa Rosa islands, Santa Barbara group, California.

Thryothorus bewickii bairdi (not *Thryothorus bairdi* Salvin and Godman) TOWNSEND (C. H.), Proc. U. S. Nat. Mus., xiii, 1890, 141 (Santa Cruz I., California).

Thryomanes bewickii nesophilus OBERHOLSER, Proc. U. S. Nat. Mus., xxi, no. 1153, Nov. 19, 1898, 442 (Santa Cruz I., Santa Barbara group, California; coll. U. S. Nat. Mus.); xxii, 1900, 234 (Santa Cruz and Santa Rosa islands; crit.).

Thryomanes nesophilus GRINNELL (J.), Pacific Coast Avifauna, no. 3, June 25, 1902, 69.

Thryomanes bewickii spilurus (not *Troglodytes spilurus* Vigors) BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 446, part (Santa Cruz I.).

THRYOMANES BEWICKII LEUCOPHRYS (Anthony).

SAN CLEMENTE WREN.

Nearest to *T. b. charienturus*, but wing and bill decidedly longer and coloration much grayer, the upper parts clear hair brown instead of dark hair brown or brownish olive, brownish gray of flanks much paler, under tail-coverts less heavily barred, and white superciliary stripe usually broader.

Adult male.—Length (skins), 120–132 (127.8); wing, 52–55.5 (53.3); tail, 51.5–54 (52.5); exposed culmen, 14–16 (15.3); tarsus, 18.5–20 (19.3); middle toe, 12.5–13 (12.7).^a

Adult female.—Length (skins), 116–132 (120.5); wing, 49–54.5 (51.7); tail, 46–54 (48.9); exposed culmen, 13.5–16 (15); tarsus, 18.5–20.5 (19.6); middle toe, 12–13.5 (12.5).^b

San Clemente Island, Santa Barbara group, California.

Thryothorus bewickii bairdi (not *Thryothorus bairdi* Salvin and Godman) TOWNSEND (C. H.), Proc. U. S. Nat. Mus., xiii, 1890, 140 (San Clemente I., California).

Thryothorus leucophrys ANTHONY, Auk, xii, Jan., 1895, 52 (San Clemente I., Santa Barbara group, California; coll. A. W. Anthony).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 2d ed., 1895, no. 719.1.—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 609.—GRINNELL (J.), Pub. no. 1, Pasadena Ac. Sci., 1897, 21 (habits).

Thryomanes bewickii leucophrys OBERHOLSER, Proc. U. S. Nat. Mus., xxi, Nov. 19, 1898, 443 (monogr.).

Thryomanes leucophrys AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, Jan., 1899, 125.—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 448.—GRINNELL (J.), Pacific Coast Avifauna, no. 3, 1902, 69.

THRYOMANES BEWICKII DRYMOECUS Oberholser.

SACRAMENTO WREN.

Nearest *T. b. charienturus*, but upper parts decidedly browner, tail shorter, bill longer, and feet smaller.

Adult male.—Length (skins), 108.5–127 (117.9); wing, 49–55 (52.1); tail, 48.5–55 (51.5); exposed culmen, 14.5–16 (14.9); tarsus, 17.5–19.5 (18.8); middle toe, 10.5–12.5 (11.5).^c

^a Six specimens.^b Five specimens.^c Ten specimens.

Adult female.—Length (skins), 110.5–121 (115.7); wing, 49–51.5 (50.1); tail, 47–52.5 (49.7); exposed culmen, 13.5–15 (14.2); tarsus, 18.5–19.5 (18.9); middle toe, 11–12.5 (11.9).^a

Central California, including valleys of the Sacramento and San Joaquin rivers, west slope of Sierra Nevada, and east slope of Coast Range (at least in part), reaching to or near the coast in Monterey, San Luis Obispo, and Los Angeles^b counties; north to Shasta and Siskiyou counties; south to Kern County (Fort Tejon; Kernville; south fork of Kern River), occasionally to Los Angeles County (Pasadena; Santa Monica Mountains).

[*Thryothorus bewickii*] *spilurus* (not *Troglodytes spilurus* Vigors) BAIRD, Review Am. Birds, 1864, 122, part.

[*Thryothorus bewickii*.] Var. *spilurus* BAIRD, Review Am. Birds, 1864, 126, part. *Thryothorus bewickii*, var. *spilurus* BAIRD, Review Am. Birds, 1864, 126, part (Fort Tejon, California).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 147 part.—NELSON, Proc. Bost. Soc. N. H., xvii, 1875, 35 (Nevada City, California).—BENDIRE, Proc. Bost. Soc. N. H., 1877, 113 (Camp Harney, Oregon; descr. nest and eggs).

Thryothorus bewickii . . . var. *spilurus* COUES, Check List, 1873, no. 486, part.—HENSHAW, Orn. Rep. Wheeler's Surv., 1876, 232 (Tejon Mts. and Walker Basin, s. e. California).

[*Thryothorus bewickii*] c. *spilurus* COUES, Birds Northwest, 1874, 31, part (in synonymy).

[*Thryothorus bewickii*] γ. *spilurus* RIDGWAY, Orn. 40th Parallel, 1877, 422 (Sacramento, California).

Thryothorus bewickii spilurus HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1875, 232 (Tejon Mts., Kernville, and Walker Basin, s. e. California).—COUES, Check List, 2d ed., 1882, no. 73, part.—TOWNSEND (C. H.), Proc. U. S. Nat. Mus., x, 1887, 227 (Baird and base of Mount Shasta, n. California, resident).

T[*hryothorus*] b[ewicki] *spilurus*? COUES, Key N. Am. Birds, 2d ed., 1884, 278, part. *Thryothorus bewickii spilurus* GOODE, Bull. U. S. Nat. Mus., no. 20, 1883, 346, part.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1887, no. 719a, part.—FISHER (A. K.), North Am. Fauna, no. 7, 1893, 134, part (Monterey, San Luis Obispo, Tejon and Temploa Mts., etc., California).

T[*hryothorus*] *bewickii spilurus* RIDGWAY, Man. N. Am. Birds, 1887, 551, part. *Thryothorus spilurus* COOPER, Orn. Cal., 1870, 69, part.—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 225, part (Eldorado City, California).

Thryomanes bewickii spilurus RIDGWAY, Bull. Essex Inst., v, Oct., 1874, 170 (Sacramento, California, June); Nom. N. Am. Birds, 1880, no. 61a, part.

Thryomanes bewickii spilurus BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 446, part.

Thryomanes bewickii, β. *spilurus* RIDGWAY, Bull. Nutt. Orn. Club, iii, Apr., 1878, 65 (Calaveras Co., California, Jan.).—BELDING, Proc. U. S. Nat. Mus., i, 1878, 402 (Marysville and Calaveras Co., California; Stockton).

Thryomanes spilurus BELDING and RIDGWAY, Proc. U. S. Nat. Mus., i, 1879, 391 (Calaveras Co., California).

Thryomanes bewickii leucogaster c. *spilurus* COUES, Birds Col. Val., 1878, 170, part (in synonymy).

^a Four specimens.

^b The breeding bird of the greater part of Los Angeles County is, apparently, *T. a. charienturus*, but several localities are represented by the present form, probably as stragglers.

Thryomanes bewickii drymæcus OBERHOLSER, Proc. U. S. Nat. Mus., xxi, no. 1153, Nov. 19, 1898, 437 (Baird, Shasta Co., California; coll. U. S. Nat. Mus.).

Thryomanes bewickii drymoecus GRINNELL (J.), Pacific Coast Avifauna, no. 3, 1902, 68.

Thryothorus bewickii (not *Troglodytes bewickii* Audubon) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 363, part (Fort Tejon, California).—XANTUS, Proc. Ac. Nat. Sci. Phila., 1859, 191 (Fort Tejon).

Thryothorus bewickii BAIRD, Cat. N. Am. Birds, 1859, no. 267, part.

THRYOMANES BEWICKII SPILURUS (Vigors).

VIGORS' WREN.

Similar to *T. b. drymoecus*, but smaller (except feet) and coloration decidedly browner (the back, etc., deep sepia to warm sepia).

Adult male.—Length (skins), 117–126 (120); wing, 50–53.5 (51.9); tail, 47.5–53 (49.7); exposed culmen, 14–15.5 (14.7); tarsus, 18–20 (19.2); middle toe, 11.5–13.5 (12.1).^a

Adult female.—Length (skins), 108.5–121.5 (116.5); wing, 48–51.5 (49.2); tail, 46.5–49.5 (48.1); exposed culmen, 12.5–15 (14.3); tarsus, 18–19.5 (18.9); middle toe, 11–13 (11.6).^a

Central coast district of California, in Sonoma, Marin,^b Contra Costa, Alameda, Santa Clara, San Francisco, San Mateo, and Santa Cruz counties and northern portion of Monterey County (shores of Monterey Bay).

Troglodytes spilurus VIGORS, Zool. Voy. "Blossom," 1839, 18, pl. 4, fig. 1 (California; no locality mentioned, but probably either San Francisco or Monterey).—BONAPARTE, Cons. Av., i, 1850, 222.

T[roglodytes] spilurus GRAY, Gen. Birds, i, 1847, 185.

[Thryothorus bewickii] spilurus BAIRD, Review Am. Birds, 1864, 122, part.

[Thryothorus bewickii.] Var. *spilurus* BAIRD, Review Am. Birds, 1864, 126, part.

Thryothorus bewickii, var. *spilurus* BAIRD, Review Am. Birds, 1864, 126, part (San Francisco and Petaluma, California).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 147, part.

Thryothorus bewickii . . . var. *spilurus* COUES, Check List, 1873, no. 48b, part.

[Thryothorus bewickii] c. *spilurus* COUES, Birds Northwest, 1874, 31, part (in synonymy).

Thryothorus bewickii spilurus COUES, Check List, 2d ed., 1882, no. 73, part.

T[hryothorus] b[ewickii] spilurus? COUES, Key N. Am. Birds, 2d ed., 1884, 278, part.

Thryothorus bewickii spilurus GOODE, Bull. U. S. Nat. Mus., no. 20, 1883, 346, part.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 719a, part.

T[hryothorus] bewickii spilurus RIDGWAY, Man. N. Am. Birds, 1887, 551, part.

Thryothorus spilurus COOPER, Orn. Cal., 1870, 69, part.—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 225, part (in synonymy).

^a Ten specimens.

^b Specimens from Nicasio, Marin County, are, as a rule, quite as deeply colored as *T. b. calophonus*, in fact but for their different measurements (which are those of *T. b. spilurus*) would be referable to that form. One example from Nicasio, in Mr. Brewster's collection (no. 20068), is, on the other hand, grayer even than *T. b. drymoecus* and can only be regarded as abnormal.

^c See Oberholser, Proc. U. S. Nat. Mus., xxi, 1898, 439.

- [*Thryomanes bewickii leucogaster*] c. *spilurus* COUES, Birds Col. Val., 1878, 170, part (in synonymy).
Thryomanes bewickii spilurus (not of Ridgway, 1874) RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880, 170, 215, part; Nom. N. Am. Birds, 1881, no. 61a, part—GRINNELL (J.), Pacific Coast Avifauna, no. 3, 1902, 68.
Thryomanes bewickii spilurus OBERHOLSER, Proc. U. S. Nat. Mus., xxi, 1896, 438 (monogr.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 124, part.
Thryomanes [sic] *bewickii spilurus* BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 446, part.
Troglodytes bewickii (not of Audubon) GAMBEL, Proc. Ac. Nat. Sci. Phila., iii, 1846, 113 (at least in part; California).
Thryothorus bewickii BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 363, part (Petaluma, San Francisco, and Cosumnes R., California).
Thryothorus bewickii BAIRD, Cat. N. Am. Birds, 1859, no. 267, part.—(?) SCLATER, Cat. Am. Birds, 1862, 22, part (California).
Thryothorus bewickii var. BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 9, fig. 4.

THRYOMANES BEWICKII CALOPHONUS Oberholser.

SEATTLE WREN.

Similar to *T. b. spilurus*, but larger and color of upper parts and flanks averaging browner.^a

Adult male.—Length (skins), 119–137.5 (126.8); wing, 51.5–55 (53.5); tail, 50.5–56 (52.3); exposed culmen, 15–16 (15.2); tarsus, 19–21 (20.2); middle toe, 12–14 (12.8).^b

Adult female.—Length (skins), 118.5–131 (124.6); wing, 49–53 (51.1); tail, 48–54 (50.4); exposed culmen, 14–15 (14.9); tarsus, 19–21 (19.7); middle toe, 11.5–14 (12.9).^b

Pacific slope district of Oregon, Washington, and southern British Columbia;^c north to southern portion of Vancouver Island and valley of Fraser River, slightly farther along coast of mainland.

Troglodytes bewickii (not of Audubon) TOWNSEND, Journ. Ac. Nat. Sci. Phila., vii, 1837, 154 (Columbia R.).—NUTTALL, Man. Orn. U. S. and Can., 2d ed., i, 1840, 489, part (Willamette R., Oregon).—NEWBERRY, Rep. Pacific R. R. Surv., vi, pt. iv, 1857, 80, part (w. Oregon).

Thryothorus bewickii BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 363, part (Fort Steilacoom, Shoalwater Bay, and Fort Vancouver, Washington).—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. 2, 1860, 189 (Puget Sound etc., Washington).

Thryothorus bewickii BAIRD, Cat. N. Am. Birds, 1859, no. 267, part.

Thryothorus bewickii BROWN, Ibis, 1868, 421 (Vancouver I.).

[*Thryothorus bewickii*] *spilurus* BAIRD, Review Am. Birds, 1864, 122, part.

[*Thryothorus bewickii*.] Var. *spilurus* BAIRD, Review Am. Birds, 1864, 126, part.

^a Not more so, however, than specimens of *T. b. spilurus* from Marin County, California, which in coloration are, as a rule, precisely similar to typical examples of the present form, though in measurements agreeing better with *T. b. spilurus*.

^b Ten specimens.

^c Specimens examined from Chilliwack, New Westminster, Westminster Junction, Mount Lehman, Agassiz, and Vancouver Island.

Thryothorus bewickii, var. *spilurus* BAIRD, Review Am. Birds, 1864, 126, part (Simiahmoo and Fort Steilacoom, Washington).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 147, part.

Thryothorus bewickii . . . var. *spilurus* COUES, Check List, 1873, no. 486, part. [*Thryothorus bewickii*] c. *spilurus* COUES, Birds Northwest, 1874, 31, part (in synonymy).

Thryothorus bewickii spilurus COUES, Check List, 2d ed., 1882, no. 73, part.

T[hryothorus] b[ewickii] spilurus? COUES, Key N. Am. Birds, 2d ed., 1884, 278, part.

Thryothorus bewickii spilurus GOODE, Bull. U. S. Nat. Mus., no. 20, 1883, 346, part.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 719a, part.—ANTHONY, Auk, iii, 1886, 171 (Washington Co., Oregon).—CHAPMAN, Bull. Am. Mus. N. H., iii, 1890, 152 (British Columbia, chiefly coastwise).—FANNIN, Check List Birds Brit. Col., 1891, 43.—LAWRENCE (R. H.), Auk, ix, 1892, 357 (Grays Harbor, Washington, resident).

T[hryothorus] bewickii spilurus RIDGWAY, Man. N. Am. Birds, 1887, 551, part.

Thryothorus spilurus COOPER, Orn. Cal., 1870, 69, part.—SHAEPPE, Cat. Birds Brit. Mus., vi, 1881, 225, part (British Columbia).—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 609, part.

[*Thyomanes bewickii leucogaster*] c. *spilurus* COUES, Birds Col. Val., 1878, 170, part (in synonymy).

Thyomanes bewickii spilurus RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880, 170, 215, part; Nom. N. Am. Birds, 1881, no. 61a, part.

Thyomanes bewickii spilurus KOBBE, Auk, xvii, 1900, 357 (Cape Disappointment, Washington).

Thyomanes bewickii calophonus OBERHOLSER, Proc. U. S. Nat. Mus., xxi, no. 1153, Nov. 19, 1898, 440 (South Park, King Co., Washington; coll. U. S. Nat. Mus.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xviii, 1901, 307 (check list no. 719e).—RATHBUN (S. F.), Auk, xix, 1902, 139 (Seattle, Washington, resident).

[*hryomanes*] *b[ewickii] calophonus* BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 447.

THRYOMANES BREVICAUDUS Ridgway.

GUADALUPE WREN.

Practically identical in coloration with *T. bewickii charienturus* except tail (the middle rectrices of which are more narrowly and much less distinctly barred), but much smaller, tail relatively shorter, and bill much longer.

Adult male.—Length (skins), 110–118 (114); wing, 48–48.5 (48.2); tail, 42–44.5 (43.2); exposed culmen, 16; tarsus, 17.5–18 (17.7); middle toe, 12–12.5 (12.2).^a

Guadalupe Island, Lower California.

Thyomanes brevicauda RIDGWAY, Bull. U. S. Geol. and Geog. Surv. Terr., ii, no. 2, Apr. 1, 1876, 186 (Guadalupe I., Lower California; coll. U. S. Nat. Mus.); Bull. Nutt. Orn. Club, ii, 1877, 60; Proc. U. S. Nat. Mus., iii, 1880, 170, 215, 228; Nom. N. Am. Birds, 1881, no. 62.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 125.

^aTwo specimens, with sex undetermined, measure as follows. Their smaller dimensions indicate that they may be females: Length (skins), 111–114.5 (112.7); wing, 46–46.5 (46.2); tail, 41–43 (42); exposed culmen, 17; tarsus, 18–18.5 (18.2); middle toe, 11.5–12 (11.7).

Thryothorus brevicaudus RIDGWAY, Proc. U. S. Nat. Mus., viii, Sept. 2, 1885, 354.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 720.—BRYANT, Bull. Cal. Acad. Sci., no. 6, 1877; ii, 1887, 312 (habits).—ANTHONY, Condor, iii, 1901, 73 (said to be extinct!).

T[hryothorus] brevicaudus RIDGWAY, Man. N. Am. Birds, 1887, 551.

Thryothorus brevicauda SHARPE, Cat. Birds Brit. Mus., vi, 1881, 227.

Thryomanes brevicaudus RIDGWAY, Proc. U. S. Nat. Mus., viii, Sept. 2, 1885, 354.—OBERHOLSER, Proc. U. S. Nat. Mus., xxi, 1898, 448 (monogr.).

THRYOMANES INSULARIS (Lawrence).

SOCORRO WREN.

Adults (sexes alike).—Above deep brownish gray or hair brown. more decidedly brownish on rump, the feathers of pileum showing very indistinct darker centers, the scapulars and interscapulars with narrow obsolete dusky bars; rump with concealed roundish spots of white, the feathers dark slate color basally; upper tail-coverts narrowly, sometimes very distinctly, barred with dusky; middle rectrices grayish brown or brownish gray, barred with dusky; the remaining rectrices similar on outer webs, but lateral rectrices with paler bars broader and dull whitish; inner webs of rectrices (except middle pair) dusky brownish gray, showing very indistinct or obsolete narrow dusky bars, and narrowly edged with white, the exterior rectrix with one or more dull whitish bars or other shaped markings near tip; wings brownish gray narrowly barred with dusky; the five or six outermost primaries edged or serrated with whitish; a narrow and inconspicuous superciliary stripe and a narrow orbital ring dull white or pale brownish buffy, the lores similar but tinged with grayish; a broad postocular stripe of grayish brown or brownish gray, occupying upper portion of auricular region; rest of auricular region dull whitish indistinctly streaked with dusky; under parts dull white, or buffy white, shading on sides and flanks into pale grayish brown, the latter more brownish; under tail-coverts with a few small spots, flecks, or bars of dusky; maxilla dusky brown with paler tomia; mandible pale brownish, more or less dusky terminally; legs and feet dusky brownish.

Young.—Similar to adults, but flanks and under tail-coverts immaculate pale buffy brown and feathers of breast and sides narrowly margined with dusky, producing a squamate effect.

Adult male.—Length (skins), 106–118.5 (114); wing, 46.5–49 (47.7); tail, 40–46.5 (43.8); exposed culmen, 14–15.5 (15.1); tarsus, 19.5–21 (20); middle toe, 12–13 (12.6).^a

Adult female.—Length (skin), 116; wing, 48; tail, 45; exposed culmen, 15.5; tarsus, 21; middle toe, 13.^b

Socorro Island, Revillagigedo group, western Mexico.

Troglodytes insularis, Baird, MS., LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., x, Feb., 1871, 3 (Socorro I., Revillagigedo group, n. w. Mexico; coll. U. S.

^a Nine specimens.

^b One specimen.

Nat. Mus.).—GRAYSON, Proc. Bost. Soc. N. H., xiv, 1872, 299.—LAWRENCE, Mem. Bost. Soc. N. H., ii., 1874, 268 (habits; song).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 99.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 64.—TOWNSEND (C. H.), Proc. U. S. Nat. Mus., xiii, 1890, 135.—ANTHONY, Auk, xv, 1898, 317.

T[roglodytes] insularis RIDGWAY, Man. N. Am. Birds, 1887, 553.

[*Troglodytes domesticus*.] Subsp. *γ*. *Troglodytes insularis* SHARPE, Cat. Birds Brit. Mus., vi., 1881, 251.

Thryomanes insularis OBERHOLSER, Proc. U. S. Nat. Mus., xxi, Nov. 19, 1898, 446 (monogr.).

Genus TROGLODYTES Vieillot.

Troglodytes VIEILLLOT, Hist. Nat. Ois. Am., Sept., ii, 1807, 52. (Type, *T. ædon* Vieillot.^a)

Hylemathrous MAXIMILIAN, Beiträg. Naturg. Bras., iii, 1830, 742, part. (To replace *Thryothorus*, i. e., *Thryothorus* + *Troglodytes*, rejected on ground of inappropriateness.^a)

Hylemothrous (emendation?) GRAY, Hand-list, i, 1869, 191, no. 723.

Anorthura RENNIE, in Montague's Orn. Dict., ed. 2, 1831, 570. (To replace *Troglodytes*, rejected on ground of inappropriateness.^b)

Paulomagus HOWE, Suppl. Birds Rhode Island, 1903, 22, footnote. (Type, *Troglodytes ædon* Vieillot.)

Small Troglodytidae (wing 46–60 mm.) resembling *Thryomanes* in having the hallux (without claw) not longer than outer toe (without claw), but in other characters more like *Thryothorus*.

Bill much shorter to a little longer than head, straight (or at least with only the tip very faintly decurved), gradually tapering, compressed anterior to nostrils, its depth at latero-frontal antiae equal to or (usually) greater than its width at same point; exposed culmen usually longer than middle toe without claw (shorter only in *T. ædon*), straight basally (usually for most of its length), gradually and not very strongly decurved terminally; gonys decidedly shorter than distance from nostril to tip of maxilla, straight, its base usually forming a distinct, though slight, angle; maxillary tomium faintly concave anterior to nostril, without trace of subterminal notch. Nostril longitudinal, cuneate or guttate (pointed anteriorly), overhung by a distinct excurrent corneous operculum, posteriorly in contact with feathering of latero-frontal antiae. Rictal bristles obsolete. Wing moderate, rounded; seventh and sixth (or eighth to fifth) primaries longest, the eighth and fifth never much shorter than seventh and sixth; ninth primary usually equal to or slightly longer than first (slightly shorter in *T. brunneicollis*), the tenth half as long as ninth or a little more. Tail two-thirds to more than five-sixths as long as wing, much rounded or graduated, the rectrices rather narrow, with rounded tip. Tarsus longer than middle toe with claw, less than one-third to considerably more than one-third as long as wing, the acrotarsium distinctly scutel-

^a See Oberholser, Auk, xix, 1902, 175, 176.

^b See Newton, Dictionary of Birds, 1896, 1051, footnote; Oberholser, Auk, xix, 1902, 175, 176.

late, the planta tarsi booted; outer toe (without claw) reaching to a very little beyond second (subterminal) joint of middle toe, its claw falling a little short of base of middle claw; inner toe (without claw) reaching to but not beyond subterminal joint of middle toe; hallux (without claw) as long as outer toe (without claw), its claw much shorter than the digit; basal phalanx of middle toe adherent to outer toe for nearly its entire length, to inner toe for more than half (usually much the greater part) of its length.

Coloration.—Above brown, the remiges and rectrices (sometimes back also) narrowly (sometimes indistinctly) barred with dusky; superciliary stripe (more or less distinct) and under parts whitish or cinnamonaceous, the under tail-coverts usually (sometimes flanks also) barred with black or dusky.

Nidification.—Nest in cavities of stumps, logs, or trees, or about buildings, composed largely of dead twigs; eggs white or pinkish, profusely sprinkled with reddish brown.

Range.—Whole of temperate and tropical America, except Greater Antilles, Guadalupe, and Revillagigedo islands, and Galapagos Archipelago. (Numerous species.)

KEY TO THE SPECIES AND SUBSPECIES OF TROGLODYTES.

- a. Tail more than three-fourths as long as wing.
 - b. Superciliary stripe indistinct, or at least not sharply defined; throat and chest not distinctly cinnamon or cinnamon-buff, or if approaching the latter color the flanks not distinctly barred.
 - c. Larger (wing 56–60, tail 46–49, tarsus 20.5–22); under parts dull pinkish buff, the under tail-coverts very narrowly barred with dusky brown; rectrices and remiges obsoletely barred. (Clarion Island, northwestern Mexico.)
Troglodytes tanneri (p. 573)
 - cc. Smaller (wing less than 56, tail usually much less than 46, tarsus usually less than 20);^a under parts not dull pinkish buff; under tail-coverts broadly barred (except in some extralimital forms); rectrices and remiges distinctly barred.
 - d. Bill larger (exposed culmen 15.5–18); posterior upper parts russet, distinctly different from grayish brown of pileum; median under parts pure white. (Cozumel Island, Yucatan.) ***Troglodytes beani*** (p. 573)
 - dd. Bill smaller, exposed culmen 11–15 (usually much less than 15); posterior upper parts not russet, or else the color not conspicuously different from brown of pileum; under parts not pure white medially.
 - e. Tail relatively shorter (less than five-sixths as long as wing, 31–40, averaging less than 39); under tail-coverts with ground color mostly pale cinnamon.
 - f. Under parts mostly white, nearly pure on throat and abdomen; upper parts grayer; feet more slender (as in *T. aëdon*); wing relatively shorter, tail longer (averaging 50.5 and 38.2, respectively, in adult male). (Coast of Yucatan.) ***Troglodytes peninsularis*** (p. 574)

^aThe only form in which the tail reaches 46 and the tarsus more than 20.5 mm. is *T. beani*, which differs in other characters opposed to those of *T. tanneri*. The tarsus sometimes measures 21 in *T. musculus inquietus*.

ff. Under parts mostly or largely pale buffy cinnamon (sometimes whitish on throat and abdomen); feet stouter; upper parts browner; wing relatively longer, tail shorter (averaging more than 50 and less than 38, respectively, in adult male). (*Troglodytes musculus*.)

g. Paler, the under parts distinctly whitish on throat and abdomen; larger (adult male averaging, wing 54, tail 37.6, exposed culmen 14.4, tarsus 19.7; adult female, wing 53.5, tail 38.5, exposed culmen 14.5, tarsus 19.7). (Isthmus of Panama, north to Chiriqui.)

Troglodytes musculus inquietus (p. 575)^a

gg. Darker, the under parts almost entirely pale to deep buffy cinnamon; smaller (measurements averaging decidedly less than the above).

h. Larger (with relatively shorter tail) and slightly paler in color; adult male averaging, wing 51.1, tail 36.3, exposed culmen 13.2, tarsus 18.7; adult female, wing 47.8, tail 33.5, exposed culmen 13.5, tarsus 17.8. (Costa Rica to southern Honduras.)

Troglodytes musculus intermedius (p. 576)

hh. Smaller (with relatively longer tail) and slightly deeper in color; adult male averaging, wing 48.6, tail 37, exposed culmen 12.9, tarsus 18; adult female, wing 48, tail 36.8, exposed culmen 12.3, tarsus 18. (Southern Mexico to Guatemala.)

Troglodytes musculus hypaëdon (p. 578)

ee. Tail relatively longer (five-sixths as long as wing, or more, 38-50, averaging more than 40); under tail-coverts with ground color mostly white. (*Troglodytes aëdon*.)

f. Browner above, the back rarely barred with dusky. (Eastern United States, south to southern Tamaulipas in winter.)

Troglodytes aëdon aëdon (p. 579)

ff. Grayer above, the back usually barred with dusky. (Central and western temperate North America and greater part of Mexico.)

Troglodytes aëdon parkmanii (p. 582)

bb. Superciliary stripe distinct; throat and chest distinctly cinnamon or cinnamon-buff; flanks distinctly barred (except in young).

c. Feathers of rump with concealed spots of white; ground color of tail brown. (*Troglodytes brunneicollis*.)

d. Deeper colored, the throat and chest decidedly cinnamonaceous, the upper parts browner.

e. Cinnamon of under parts paler, the lower abdomen more or less extensively whitish. (Southern Mexico, from States of Guerrero and Oaxaca northward to San Luis Potosi, Mexico, and Zacatecas.)

Troglodytes brunneicollis brunneicollis (p. 586)

ee. Cinnamon of under parts deeper, covering whole abdomen. (Mount Zempoaltepec, Oaxaca.) *Troglodytes brunneicollis nitidus* (p. 588)

^a Not having the time to study the South American relatives of this form, I follow Mr. Oberholser in reducing *T. inquietus*, *T. intermedius*, and *T. hypaëdon* to the rank of subspecies of *T. musculus*; nevertheless, I have received the impression, from comparison of scant material it is true, that Mr. Oberholser has gone too far in reducing the number of specific types, and that a better arrangement would be to consider *T. inquietus* as a subspecies of *T. striatulus*, and *T. intermedius* as specifically distinct (I have not been able to find intermediates). The nomenclature of the Central American forms would according to this arrangement be as follows: *T. striatulus inquietus*, *T. intermedius intermedius*, and *T. intermedius hypaëdon*. See Oberholser, Proc. U. S. Nat. Mus., xxvii, no. 1354, 1904, pp. 197-210.

dd. Paler, the throat and chest cinnamon-buff, the upper parts grayer. (Northern Mexico, in States of Sonora, Chihuahua, Coahuila, Nuevo Leon, Tamaulipas, Durango, Jalisco, and Zacatecas.)

Troglodytes brunneicollis cahooni (p. 588)

cc. Feathers of rump without concealed white spots; ground color of tail gray. (Mountains of Santa Marta, Colombia.)

Troglodytes monticola (extralimital.)

aa. Tail less than three-fourths as long as wing.

b. Culmen not more than 14; under parts neither white nor rufous-cinnamon.

c. Flanks heavily barred with dusky brown (except in young); throat and superciliary stripe tawny or tawny-ochraceous; tail 35 or more. (Highlands of Guatemala.) *Troglodytes rufociliatus* (p. 588)

cc. Flanks very slightly if at all barred; throat and superciliary stripe ochraceous-buff; tail less than 35.

d. Flanks without trace of bars; upper parts paler and duller brown; tarsus 17.5-18. (High mountains of Costa Rica and Chiriqui.)

Troglodytes ochraceus (p. 590)

dd. Flanks barred with dusky; upper parts darker and brighter brown; tarsus 19-20. (Ecuador; Peru?; Colombia?)

Troglodytes solstitialis (extralimital.)

bb. Culmen 15 or more; under parts white (becoming rufescent laterally), rufous-cinnamon, or pale cinnamon.

c. Under parts white, becoming rufescent or tawny on sides and flanks.

d. Smaller (adult male averaging, wing 53, tail 38, exposed culmen 17, tarsus 18.2). (Island of Santa Lucia, Lesser Antilles.)

Troglodytes mesoleucus (p. 591)

dd. Larger (adult male averaging, wing 59.2, tail 43.4, exposed culmen 17, tarsus 20.8). (Island of St. Vincent, Lesser Antilles.)

Troglodytes musicus (p. 591)

cc. Under parts rufous-cinnamon or pale cinnamon.

d. Larger (wing 53-59, exposed culmen 16-18).

e. Tawny rufescent brown above; under tail-coverts plain cinnamon-rufous; pale cinnamon of under parts deepening into cinnamon-rufous on flanks. (Island of Grenada, Lesser Antilles.)

Troglodytes grenadensis (p. 592)

ee. Deep grayish brown above; under tail-coverts tipped with white and broadly barred with black; pale cinnamon of under parts duller, but little deeper on flanks. (Island of Martinique, Lesser Antilles.)

Troglodytes martinicensis (p. 593)

dd. Smaller (wing 48-53.5, exposed culmen 15-16.5).

e. Under parts deep rufous-cinnamon, the under tail-coverts spotted with black, but without white tip; brown of upper parts brighter, more chestnut. (Island of Dominica, Lesser Antilles.)

Troglodytes rufescens (p. 594)

ee. Under parts buffy cinnamon, the under tail-coverts barred with black and broadly tipped with white; brown of upper parts duller. (Island of Guadeloupe, Lesser Antilles.) *Troglodytes guadeloupensis* (p. 595)

^a *Troglodytes monticola* Bangs, Proc. Biol. Soc. Wash., xiii, Nov. 11, 1899, 106 (Paramo de Chiruqua, province of Santa Marta, Colombia, 15,000 ft. alt.; coll. E. A. and O. Bangs; also Paramo de Macotama, 11,000-15,000 ft. alt.).

^b *Troglodytes solstitialis* Selater, Proc. Zool. Soc. Lond., 1858, 550 (Matos and Pinipi, centr. Ecuador; coll. P. L. Selater); Selater and Salvin, Exotic Orn., iii, 1867, 45, pl. 23, fig. 1; (?) Proc. Zool. Soc. Lond., 1879, 493 (Antioquia, Colombia); Taczanowski, Orn. du Pérou, i, 1884, 521 (Maraynioc and Punamarca, centr. Peru); Salvin and Godman, Biol. Centr.-Am., Aves, i, 1880, 102, part; Sharpe, Cat. Birds Brit. Mus., vi, 1881, 260, part.

TROGLODYTES TANNERI Townsend.

CLARION ISLAND WREN.

Adults (sexes alike).—Above plain grayish brown (hair brown to broccoli brown), the rump and upper tail-coverts more buffy brown (between broccoli brown and isabella color); tail and remiges (especially secondaries) narrowly and indistinctly barred with slightly darker brown; feathers of rump with concealed triangular spots of white; ninth primary narrowly edged with dull whitish, the eighth and seventh primaries with outer web notched or serrated with the same on basal or subbasal portion; loreal region, confluent with a narrow superciliary stripe, dull brownish white; a narrow postocular stripe of deep grayish brown; auricular region (except upper margin) pale brownish buffy, more or less streaked or clouded with pale grayish brown, the suborbital and malar regions similar but either immaculate or else faintly barred with pale grayish brown; under parts pale dull pinkish buff, deeper, and tinged with pale grayish brown, on sides and flanks; under tail-coverts narrowly but very distinctly barred with brown; maxilla dark brown or brownish black with paler tomia; mandible pale buffy brownish (flesh colored in life?), sometimes slightly darker terminally; legs and feet horn brownish (in dried skins).

Adult male.—Length (skins), 123–133 (128); wing, 58–60 (59.1); tail, 45–49 (47); exposed culmen, 16–17 (16.6); tarsus, 20.5–22 (21.6); middle toe, 13–14 (13.7).^a

Adult female.—Length (skins), 123–134 (128.5); wing, 56–59 (57.5); tail, 46–48 (46.7); exposed culmen, 16; tarsus, 21–21.5 (21.1); middle toe, 13–15 (14.5).^b

Clarion Island, Revillagigedo group, western Mexico.

Troglodytes tanneri TOWNSEND, Proc. U. S. Nat. Mus., xiii, no. 799, Sept. 9, 1890, 133 (Clarion I., Revillagigedo group, n. w. Mexico; coll. U. S. Nat. Mus.).—ANTHONY, Auk, xv, 1898, 318 (descr. nest).—OBERHOLSER, Proc. U. S. Nat. Mus., xxvii, 1904, 208 (crit.).

TROGLODYTES BEANI Ridgway.

COZUMEL WREN.

Adults (sexes alike).—Above plain brown (decidedly warmer than broccoli brown) changing on rump and upper tail-coverts to chestnut-brown (mars brown), the back, scapulars, and upper tail-coverts sometimes showing faint narrow bars, or indications of bars, of a darker hue; the rump with concealed triangular or guttate whitish spots; wings and tail duller chestnut-brown, narrowly and indistinctly barred with dusky, the bars obsolete, or nearly so, on the coverts; an indistinct superciliary stripe of pale buffy brown, becoming whitish ante-

^a Six specimens.

^b Four specimens.

riorly, the lores also whitish; auricular region pale brownish, streaked with paler, darker along upper margin; under parts white, or brownish white, changing to pale buffy brown on sides and flanks, the latter sometimes very faintly barred; under tail-coverts pale buffy brown or cinnamon, tipped with dull white, and crossed by one or two narrow bars of blackish or dark brown; maxilla dark brown or blackish, with pale tomia; mandible pale brownish (flesh colored in life), sometimes darker terminally; legs and feet light brownish (in dried skins).

Adult male.—Length (skins), 116–130 (121); wing, 50–55.5 (52.7); tail, 40–48 (44.5); exposed culmen, 16–18 (16.7); tarsus, 20–21 (20.6); middle toe, 12–14 (13.3).^a

Adult female.—Length (skins), 113–125 (121); wing, 50–57 (53.1); tail, 42–45 (43.6); exposed culmen, 15.5–17 (16.5); tarsus, 19–20.5 (19.9); middle toe, 13–15 (13.7).^b

Cozumel Island, Yucatan.

Troglodytes beani RIDGWAY, Descr. New Species Birds from Cozumel, Feb. 28, 1885, 1; Proc. Biol. Soc. Washington, iii, 1885, 21 (Cozumel I., Yucatan; coll. U. S. Nat. Mus.); Proc. U. S. Nat. Mus., viii, 1885, 563 (full description).—SALVIN, Ibis, 1888, 245 (crit.).—OBERHOLSER, Proc. U. S. Nat. Mus., xxvii, 1904, 208 (crit.).

T[roglodytes] beani RIDGWAY, Man. N. Am. Birds, 1887, 553.

TROGLODYTES PENINSULARIS Nelson.

MANGROVE WREN.

Similar in coloration to *T. beani*, but much smaller and upper parts more grayish, with rump, etc., less rufescent; similar also to *T. aëdon parkmanii*, but upper parts more uniform and under parts paler, with chest and sides pale pinkish buffy, the flanks dull ochraceous-buffy, very indistinctly if at all barred; sizeslightly smaller, with bill and feet larger.

Adults (sexes alike).—Above plain broccoli brown, slightly grayer (more hair brown) anteriorly, more decidedly brown (cinnamomeous broccoli brown) on rump and upper tail-coverts, the latter more or less distinctly barred with darker; scapulars and interscapulars sometimes with faint narrow bars of darker; feathers of rump with large concealed guttate spots of white, their basal portion slate color; tail brownish cinnamon or light cinnamon-brown, rather narrowly barred with dusky; wings intermediate in color between back and tail, the greater coverts and remiges barred with dusky, these bars broader on primaries, the brown interspaces paler (pale wood brown); tip of outermost middle coverts with a more or less distinct (sometimes very minute) median wedge-shaped or guttate mark of white; an indistinct superciliary streak of pale brownish buffy; auricular region pale grayish brown, narrowly and indistinctly streaked with paler; malar region, chin, throat, chest, and anterior portion of sides pale dull

^a Nine specimens.

^b Five specimens.

pinkish buff or very pale cinnamon, deepening into pale cinnamonous wood brown or dull vinaceous-cinnamon on flanks, which are sometimes indistinctly barred with darker; breast and abdomen white; under tail-coverts white, suffused with pale cinnamon, and rather broadly barred with dusky brown; axillars and under wing-coverts immaculate brownish white; maxilla blackish brown with paler tomia; mandible pale brownish (in dried skins); legs and feet light horn color (in dried skins).

Adult male.—Length (skins), 106–112 (110); wing, 49–52 (50.5); tail, 36–41 (38.2); exposed culmen, 13.5–14 (13.9); tarsus, 18–19 (18.7); middle toe, 12–13 (12.7).^a

Coast of Yucatan (Progreso).

Troglodytes peninsularis NELSON, Proc. Biol. Soc. Wash., xiv, Sept. 25, 1901, 174 (Progreso, Yucatan; coll. U. S. Nat. Mus.).—OBERHOLSER, Proc. U. S. Nat. Mus., xxvii, 1904, 208 (crit.).

TROGLODYTES MUSCULUS INQUIETUS (Baird).

PANAMA HOUSE WREN.

Similar in coloration of upper parts to *T. peninsularis*, but anterior and lateral under parts more strongly brownish buffy, flanks distinctly barred with dusky, and bars on under tail-coverts broader and more blackish; larger, with shorter tail. Similar to *T. musculus striatulus*,^b but upper parts slightly darker and browner and under parts more strongly brownish buffy.

Adults (sexes alike).—Above deep broccoli brown, slightly more rufescent or more decidedly brown on rump and upper tail-coverts, the latter (sometimes rump also) barred with dusky; back and scapulars usually narrowly barred, more or less distinctly, with dusky; tail grayish cinnamon-brown, broadly barred with dusky; wings intermediate in color between back and tail, the greater coverts narrowly, the remiges more broadly, barred with dusky (the brown interspaces, especially on primaries, paler brown); middle and lesser coverts with very indistinct (sometimes obsolete) narrow bars of darker grayish brown; an indistinct superciliary streak of pale brownish buff or brownish white; an indistinct grayish brown postocular streak (on upper portion of auricular region); suborbital and auricular regions (except upper portion of the latter) indistinctly streaked with light grayish brown and pale brownish buff or dull brownish white; malar region, chin, and throat buffy white or very pale brownish buff; chest and anterior portion of sides pale brownish buff, this deepening on flanks into grayish ochraceous-buff or light clay color, barred, more

^a Four specimens. No females examined.

^b *Thriothorus striatulus* Lafresnaye, Rev. Zool., 1845, 338.—*Troglodytes musculus striatulus* Oberholser, Proc. U. S. Nat. Mus., xxvii, no. 1354, Jan. 23, 1904, 205 (crit.). (Highlands of Colombia.)

or less distinctly, with brown or dusky; breast and abdomen white; under tail-coverts white, more or less tinged or suffused with brownish buff, broadly barred with black or dusky; axillars and under wing-coverts very pale grayish buff, with narrow and indistinct concealed mesial streaks of pale grayish brown; maxilla dark brown or blackish with paler tomtia; mandible pale brownish (in dried skins); iris brown; legs and feet horn color (in dried skins).

Young.—Essentially like adults, but flanks and under tail-coverts plain buffy brown or cinnamon, and feathers of chest and anterior portion of sides narrowly margined with brownish.

Adult male.—Length (skins), 105–116 (110); wing, 48–59 (54); tail, 33–39 (37.6); exposed culmen, 14–15 (14.4); tarsus, 18–21 (19.7); middle toe, 12.5–14 (13.3).^a

Adult female.—Length (skins), 110–113 (112); wing, 52–55 (53.5); tail, 38–39 (38.5); exposed culmen, 14–15 (14.5); tarsus, 19–20.5 (19.7); middle toe, 13.5–14 (13.7).^b

Isthmus of Panama, from line of Panama Railway (Panama; Lion Hill Station) to Chiriqui (David; Boquete; Divala) and Veragua (Chitra; Calovevora). Southwestern Costa Rica?

Troglodytes hypædon (not of Scater) LAWRENCE, Ann. Lyc. N. Y., vii, 1861, 188, 320 (Lion Hill, Panama R. R.).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 346 (Lion Hill).

Troglodytes inquietus BAIRD, Review Am. Birds, Sept., 1864, 143 (Panama R. R. coll. U. S. Nat. Mus.; ex "Lawrence, MSS.").—LAWRENCE, Ann. Lyc. N. Y., viii, 1865, 175 (David, Chiriqui); (?) ix, 1868, 93 (Costa Rica).—BANGS, Proc. New Engl. Zool. Club, ii, 1900, 26 (Loma del Leon, Panama R. R.); iii, 1902, 53 (Boquete, Chiriqui, 4,000 ft. alt.); Auk, xviii, 1901, 368 (Divala, Chiriqui).

Troglodytes musculus inquietus OBERHOLSER, Proc. U. S. Nat. Mus., xxvii, no. 1354, Jan. 23, 1904, 205 (crit.).

Troglodytes tessellatus (not *T. tecellata* Lafresnaye and D'Orbigny) SALVIN, Proc. Zool. Soc. Lond., 1867, 135 (David, Chiriqui; crit.).

Troglodytes furvus (not *Motacilla furva* Gmelin) SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 101, part (David, Chiriqui; Chitra and Calovevora, Veragua; Obispo and Lion Hill, Panama R. R.).

Troglodytes striatulus (not of Lafresnaye) SHARPE, Cat. Birds Brit. Mus., vi, 1881, 254, part (Panama, Lion Hill, Paraiso, and Colon, Panama R. R.; Chitra and Calovevora, Veragua).

TROGLODYTES MUSCULUS INTERMEDIUS (Cabanis).

COSTA RICAN HOUSE WREN.

Similar to *T. m. inquietus*, but upper parts decidedly browner and less distinctly barred (the bars on remigès and rectrices narrower), and under parts much deeper in color (pale buffy cinnamon or cinnamon-buff, paler, rarely approaching whitish, on abdomen or throat); decidedly smaller.

Adults in spring and summer.—Above warm sepia or bistre brown,

^a Ten specimens.

^b Two specimens.

more rufescent (nearly prouts brown) on rump and upper tail-coverts, the latter narrowly barred with dusky; back and scapulars sometimes (rarely) with very indistinct narrow bars of darker; feathers of rump with large concealed roundish or guttate spots or streaks of white, their basal portion slate color; tail brown (varying from dull russet-brown or mars brown to a duller or more grayish hue), barred with dusky, the bars on middle rectrices usually broken or irregular; wings similar in color to tail, but slightly duller, the greater coverts and remiges barred with dusky, the brown interspaces paler on outermost primaries; tip of outermost middle coverts usually with a minute mesial wedge-shaped spot or streak of whitish; a narrow and rather distinct but not sharply-defined superciliary streak of pale cinnamon-buff; a rather distinct broad postocular streak of brown on upper portion of auricular region; suborbital and auricular regions (except upper part of latter) indistinctly streaked with grayish brown and pale cinnamon-buff; malar region and under parts cinnamon-buff or pale buffy cinnamon, paler on throat and abdomen (especially the latter) where sometimes inclining to white, deeper and more decidedly cinnamon or cinnamon-brown on flanks, where sometimes indistinctly barred with darker brown or dusky; under tail-coverts light cinnamon, tipped with white or whitish, and broadly barred with black; axillars and under wing-coverts plain cinnamon-buff; maxilla dusky brown or blackish with paler tomia; mandible pale brownish (in dried skins); iris brown; legs and feet light horn brown (in dried skins).

Adults in autumn and winter.—Similar to the spring and summer plumage but browner above and deeper colored beneath, the under parts deep cinnamon-buff.

Young.—Essentially like adults, but under tail-coverts plain cinnamon or russet, pale superciliary and brown postocular streaks indistinct, and under parts duller brownish buffy (the throat, etc., tinged with grayish), and feathers of chest and sides of breast narrowly and very indistinctly margined with brownish.

Adult male.—Length (skins), 101–114 (108); wing, 48–53 (51.1); tail, 32–38.5 (36.3); exposed culmen, 12–14 (13.2); tarsus, 17–19.5 (18.7); middle toe, 12–14 (13.3).^a

Adult female.—Length (skins), 94–106 (100); wing, 45–49.5 (47.8); tail, 31–36 (33.5); exposed culmen, 13–14 (13.5); tarsus, 17.5–18 (17.8); middle toe, 12–13 (12.7).^b

Costa Rica (San José; Santa Maria de Dota; Monte Redondo; Barranca; Cartago; Naranjo; Birris; Tucurrique), eastern Nicaragua (Chontales; Rio Escondido), and southern Honduras (Rio Segovia).

Troglodytes intermedius CABANIS, Journ. für. Orn., viii, Nov., 1860, 407 (San José, Costa Rica; coll. Berlin Mus.).—BAIRD, Review Am. Birds, 1864, 142, part (San José, Costa Rica).—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 93 (San José

^aNine specimens.

^bThree specimens.

and Barranca, Costa Rica).—BOUCARD, Proc. Zool. Soc., Lond., 1878, 51 (San José, Cartago, and Naranjo, Costa Rica).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 100, part.—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 252, part (Chontales, Nicaragua; Irazú distr., Tucurrique, Barranca, and San José, Costa Rica).—ZELEDON, Proc. U. S. Nat. Mus., viii, 1885, 105 (Costa Rica); Anal. Mus. Nac. Costa Rica, i, 1887, 106 (San José, Santa Maria de Dota, Monte Redondo, and Cartago, Costa Rica).—CHERRIE, Auk, viii, 1891, 275 (localities in Costa Rica; habits; descr. nest and eggs; crit.; measurements, etc.).—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 483 (Rio Escondido, Nicaragua; habits).

[*Troglodytes*] *intermedius* GRAY, Hand-list, i, 1869, 191, no. 2617.

T[roglodytes] *intermedius* RIDGWAY, Man. N. Am. Birds, 1887, 554, part.

Troglodytes fuscus intermedius RIDGWAY, Proc. U. S. Nat. Mus., x, Aug. 6, 1888, 585 (Segovia R., Honduras).

Troglodytes musculus intermedius OBERHOLSER, Proc. U. S. Nat. Mus., xxvii, no. 1354, Jan. 23, 1904, 205 (crit.).

Troglodytes inquietus (not of Baird) LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 93 (Costa Rica).

Troglodytes fuscus (not *Motacilla furca* Gmelin) ZELEDON, Cat. Aves de Costa Rica, 1882, 3.

TROGLODYTES MUSCULUS HYPAEDON (Sclater).

OAXACA HOUSE WREN.

Similar to *T. m. intermedius*, but upper parts deeper and more reddish brown, under parts slightly deeper in color (especially on flanks), and size slightly smaller.

Adult male.—Length (skins), 98–111 (105); wing, 47–54 (48.6); tail, 35–40 (37); exposed culmen, 12.5–13.5 (12.9); tarsus, 17–19 (18); middle toe, 12–14 (12.4).^a

Adult female.—Length (skins), 100–113 (105.2); wing, 47–50 (48); tail, 34–40 (36.8); exposed culmen, 12–12.5 (12.3); tarsus 18; middle toe, 12–13 (12.7).^b

^a Twelve specimens.

^b Six specimens.

Specimens from Yucatan compare in average measurements with those from Chiapas as follows; average measurements of Costa Rican specimens (*T. i. intermedius*) being given for further comparison:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Nine adult males from Costa Rica (<i>T. i. intermedius</i>)	51.1	36.3	12.8	18.7	13.3
Seven adult males from Chiapas	50.5	37.8	12.9	18.1	12.7
Five adult males from Yucatan	47.9	36	12.9	17.8	12
FEMALES.					
Three adult females from Costa Rica (<i>T. i. intermedius</i>)	47.8	33.5	13	17.8	12.7
Four adult females from Chiapas	48.5	38	12.4	18	13
Two adult females from Yucatan	48	36.8	12.3	18	12.7

The difference in coloration between specimens from southern Mexico and those from Costa Rica is exceedingly slight and may prove inconstant.

Southeastern Mexico, in States of Oaxaca (Totontepec; Capulalpam), Yucatan (Merida; La Vega), and Chiapas (Chicharras; Tapachula San Cristobal; Valley of Comitán), and Guatemala (Dueñas; Panajachel; Quezaltenango; Coban; Retalhuleu).

Troglodytes, sp.? SCLATER, Proc. Zool. Soc. Lond., 1859, 372 (Mexico).

Troglodytes aëdon (not of Vieillot) SCLATER and SALVIN, Ibis, 1859, 9 (Dueñas, Guatemala).

(?) *Troglodytes aëdon* BOUCARD, Liste Ois. Guat., 1878, 29.

(?) [*Troglodytes*] *aëdon* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1882, 47 (Dueñas, Guatemala).

Troglodytes hypaëdon SCLATER, Proc. Zool. Soc. Lond., 1861, 128 (s. Mexico and Guatemala; coll. P. L. Sclater); 1862, 18 (Totontepec and Capulalpam, Oaxaca); Cat. Am. Birds, 1862, 23 (Oaxaca; Guatemala).

Troglodytes musculus hypaëdon OBERHOLSER, Proc. U. S. Nat. Mus., xxvii, no. 1354, Jan. 23, 1904, 204 (crit.).

[*Troglodytes*] *tessellatus* (not *T. tecellata* Lafresnaye and D'Orbigny) SCLATER and SALVIN, Nom. Av. Neotr., 1873, 7, part.

Troglodytes intermedius (not of Cabanis) BAIRD, Review Am. Birds, 1864, 142, part (Totontepec, Oaxaca; Guatemala).—LAWRENCE, Ann. Lyc. N. Y., ix, 1869, 199 (Merida, Yucatan).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 100, part (Dueñas, Panajachel, Quezaltenango, Coban, etc., Guatemala).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 252, part (Dueñas, Retalhuleu and Vera Paz, Guatemala).—SKINNER, Condor, iii, 1901, 94 (Tapachula, Chiapas; habits, etc.).

T[roglodytes] intermedius RIDGWAY, Man. N. Am. Birds, 1887, 554, part.

TROGLODYTES AËDON AËDON Vieillot.

HOUSE WREN.

Adults in spring and summer.—Above brown (nearest prouts brown), duller and grayer on pileum, where the feathers have the central portion indistinctly darker, brighter, or more rufescent on rump and upper tail-coverts; feathers of rump with concealed roundish spots of white, their basal portion dusky slate color; back and scapulars sometimes narrowly and indistinctly barred with dusky; upper tail-coverts narrowly barred (more or less distinctly) with dusky; tail, greater wing-coverts, and secondaries brown (approaching mars brown) narrowly barred with black; primaries dusky, their outer webs spotted with pale brown (becoming whitish on outermost quills), these spots in transverse series, forming regular broad bars; a narrow and indistinct superciliary streak of pale grayish brown or grayish buffy; a broader postocular streak of deep brown on upper portion of auricular region; suborbital, malar, and auricular regions (except upper portion of the latter) very pale grayish buffy or dull brownish white, the last narrowly streaked with brown; chin, throat, and abdomen dull white, the last sometimes more or less speckled with dusky; chest and sides of breast (sometimes throat also) very pale grayish brown or grayish buffy, passing into a deeper and more decidedly brown

hue on sides and flanks, which are more or less distinctly barred (sparrowly) with darker brown or dusky; under tail-coverts dull white, more or less tinged or intermixed with rusty brown and irregularly barred with black; maxilla dusky brown or blackish, with paler tomia; mandible paler brownish; iris brown; legs and feet light brownish (in dried skins).

Adults in autumn and winter.—Similar to the spring and summer plumage, but coloration slightly deeper, the brown of upper parts sometimes approaching chestnut-brown.

Young.—Essentially like adults, but flanks and under tail-coverts plain russet, or light russet-brown, and superciliary streak obsolete; chest sometimes (more rarely throat also) flecked with brown or dusky.

Adult male.—Length (skins), 107–115 (111); wing, 49–53 (50.7); tail, 40–44 (42.2); exposed culmen, 11–13 (12.4); tarsus, 16.5–18.5 (17.5); middle toe, 11–13 (12).^a

Adult female.—Length (skins), 105–111 (109); wing, 47–53 (50.2); tail, 39–43 (41.3); exposed culmen, 12–13¹ (12.2); tarsus, 17–18 (17.4); middle toe, 11.5–13 (12.2).^b

Eastern United States and Canada; north to New Brunswick (Grand Falls), Maine (Oxford County), Ontario (Hamilton, Muskoka, etc.), Michigan (Wequetonsing; Mackinac Island), etc.; west to Indiana (Knox County) and Kentucky (Fulton County); wintering chiefly in the Gulf States, but extending through eastern Texas (Nueces Bay, December 1; Alice, October 5; Santa Rosa, September 27) to eastern Mexico (Alta Mira,^c Tamaulipas, April 8).

Troglodytes aedon VIEILLLOT, Ois. Am. Sept., ii, 1807, 52, pl. 107 (North America, no special locality designated); Nouv. Dict. d'Hist. Nat., xxxiv, 1819, 506.—BONAPARTE, Journ. Ac. Nat. Sci. Phila., iv, 1824, 187; Ann. Lye. N. Y., ii, 1826, 92; Geog. and Comp. List, 1838, 11.—AUDUBON, Orn. Biog., i, 1831, 427; v, 1839, 470, pl. 83; Synopsis, 1839, 75; Birds Am., 4th ed., ii, 1841, 125, pl. 120.—(?) HOY, Proc. Ac. Nat. Sci. Phila., 1853, 312 (Wisconsin).—THOMPSON, Nat. Hist. Vermont, 1853, 84.—PITMAN, Proc. Essex Inst., i, 1856, 208 (Massachusetts).—HAYMOND, Proc. Ac. Nat. Sci. Phila., 1856, 288 (Indiana).—VERRILL, Proc. Essex Inst., iii, 1862, 149 (Oxford Co., Maine).—BAIRD, Review Am. Birds, 1864, 138, part (Carlisle, Pennsylvania; District of Columbia; Macon, Georgia; Cape Florida, and Indian Key, Florida).—MCLLWRAITH, Proc. Essex Inst., v, 1866, 88 (Hamilton, Ontario).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 149, part, pl. 9, fig. 5.—LANGDON, Birds Cincinnati, 1877, 4 (rare; common at Columbus).

[*Troglodytes*] *aedon* COUES, Key N. Am. Birds, 1872, 87.

Troglodytes aedon PEABODY, Rep. Orn. Mass., 1839, 314.—NUTTALL, Man. Orn. U. S. and Can., 2d ed., i, 1840, 475.—BONAPARTE, Consp. Av., i, 1850, 222.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 367, part (Pennsylvania; District of Columbia; Florida); Cat. N. Am. Birds, 1859, no. 270.—COUES, Check List, 1873, no. 49; Birds Northwest, 1874, 32, part.—ALLEN, Bull. Mus. Comp. Zool., ii, 1871, 265, excl. syn. part (e. Florida, winter); Bull. Am. Mus. N. H., i, 1886, 260 (Massachusetts).—BREWER, Bull. Nutt. Orn. Club, iii, 1878, 21 (descr. young).—COVERT, Birds Washtenaw Co., Mich., 1881, 176 (summer resident).—MERRIAM, Bull. Nutt. Orn. Club, vi, 1881, 27.

^a Ten specimens. ^b Six specimens. ^c The only extralimital specimen seen by me.

- (Lewis Co., New York, breeding).—RIDGWAY, *Nom. N. Am. Birds*, 1881, no. 63; *Bull. Nutt. Orn. Club*, vii, 1882, 19 (Knox Co., Indiana).—NEHRING, *Bull. Nutt. Orn. Club*, vii, 1882, 8 (Harris Co., Texas, in winter); *Our Native Birds*, etc., i, 1893, 151.—BATCHELDER, *Bull. Nutt. Orn. Club*, vii, 1882, 105 (Grand Falls, New Brunswick; 1 pair breeding).—BICKNELL, *Auk*, i, 1884, 137 (song; song period).—BUTLER, *Bull. Brookv. Soc. N. H.*, no. 2, 1886, 37 (Franklin Co., Indiana, rare visitant; breeds 9 m. n. of county line); *Birds Indiana*, 1897, 1119 (summer resid., except s. of Knox Co.).—AMERICAN ORNITHOLOGISTS' UNION, *Check List*, 1886, no. 721.—FAXON and ALLEN, *Auk*, v, 1888, 159 (Franconia, New Hampshire).—FAXON, *Auk*, vi, 1889, 105 (Berkshire Co., Massachusetts, breeding).—PINDAR, *Auk*, vi, 1889, 316 (Fulton Co., Kentucky, "resident").—REED, *Auk*, vi, 1889, 339 (descr. nest built inside of hornet's nest).—SCOTT, *Auk*, vii, 1890, 117 (Tarpon Springs, Punta Rasa, and Key West, Florida, winter).—RALPH and BAGG, *Auk*, vii, 1890, 232 (records disappearance of the species at Utica, New York, since 1887).—WHITE, *Auk*, x, 1893, 229 (Mackinac I., Michigan, breeding).—ULREY and WALLACE, *Proc. Ind. Ac. Sci.*, 1895, 158 (Wabash, Indiana, common summer resid.).—JUDD, *Yearbook Dept. Agric. for 1895* (1896), 416-418, fig. 109 (range, habits, food, etc.).—HADLEY, *Proc. Ind. Ac. Sci.*, 1897, 196 (Wayne Co., Indiana, common summer resid.).—RIVES, *Auk*, xv, 1898, 137 (West Virginia, breeding in spruce belt).—BEYER, *Proc. Louis. Soc. Nat. for 1897-99* (1900), 42 (Louisiana, winter resid.).—FAXON and HOFFMANN, *Birds Berkshire Co., Mass.*, 1900, 14 (summer resident).—EMBODY, *Birds Madison Co., N. Y.*, 1901, 32 (summer resident).—FLEMING, *Auk*, xviii, 1901, 44 (Muskoka, etc., n. Ontario, common summer resident).—WIDMANN, *Auk*, xix, 1902, 237 (Wequetonsing, Michigan, breeding).
- [*Troglodytes*] *aëdon* SCLATER and SALVIN, *Nom. Av. Neotr.*, 1873, 7, part (Mexico). *T[roglodytes] aëdon* RIDGWAY, *Man. N. Am. Birds*, 1887, 553.—ALLEN, *Auk*, v, 1888, 164 (crit.).
- [*Troglodytes aëdon*] var. *aëdon* BAIRD, BREWER, and RIDGWAY, *Hist. N. Am. Birds*, i, 1874, 148.
- [*Troglodytes aëdon*] *α. aëdon* RIDGWAY, *Orn. Illinois*, i, 1889, 94.
- Troglodytes aëdon aëdon* OBERHOLSER, *Proc. U. S. Nat. Mus.*, xxvii, no. 1354, Jan. 23, 1904, 201 (crit.).
- Hylemathrout aëdon* CABANIS, *Journ. für Orn.*, 1860, 407.
- Sylvia domestica* WILSON, *Am. Orn.*, i, 1808, 129, pl. 8, fig. 3 (ex *Motacilla domestica*, etc., Bartram, *Travels*, 1st Am. ed., i, 291).—BONAPARTE, *Journ. Ac. Nat. Sci. Phila.*, iv, 1824, 187.
- Troglodytes domestica* COUES, *Proc. Ac. Nat. Sci. Phila.*, 1875, 351.
- Troglodytes domesticus* SHARPE, *Cat. Birds Brit. Mus.*, vi, 1881, 248.—COUES, *Check List*, 2d ed., 1882, no. 74.
- T[roglodytes] domesticus* COUES, *Key N. Am. Birds*, 2d ed., 1884, 278.
- [*Troglodytes domesticus parkmani*] *a. domesticus* COUES, *Birds Col. Val.*, 1878, 171 (synonymy).
- Troglodytes fulvus* "Bonap"[arte] NUTTALL, *Man. Orn. U. S. and Can.*, i, 1832, 422, part.
- Troglodytes furvus* (not *Motacilla furva* Gmelin) RICHARDSON, *List*, 1837, 11.—GLOGER, *Journ. für Orn.*, 1854, 376.
- Troglodytes americanus* (not *Troglodytes americana* Lesson, 1831^a) AUDUBON, *Orn. Biog.*, ii, 1834, 452 (Eastport, Maine; type in coll. U. S. Nat. Mus.); v, 1839, 469, pl. 179; *Synopsis*, 1839, 75; *Birds Am.*, oct. ed., ii, 1841, 123, pl. 119.—PEABODY, *Rep. Orn. Mass.*, 1839, 316.—BONAPARTE, *Consp. Av.*, i, 1850, 222.—PUTNAM, *Proc. Essex Inst.*, i, 1856, 208.—BAIRD, *Rep. Pacific R. R. Surv.*,

^a *Troglodytes americana* Lesson, *Traité d'Orn.*, 1831, 400 (ex Cuvier, manuscript in Paris Mus.). As given by Lesson, the name is a pure *nomen nudum*; but it may have been elsewhere published, in connection with a description by Cuvier. The habitat is given as Cayenne.

ix, 1858, 368; Cat. N. Am. Birds, 1859, no. 272; Review Am. Birds, 1861, 141.—VERRILL, Proc. Essex Inst., iii, 1862, 149 (Oxford Co., Maine).—LIVERENCE, Ann. Lyc. N. Y., viii, 1866, 283 (near New York City).—COCKE, Proc. Essex Inst., v, 1868, 278.—TURNBULL, Birds E. Penn. and N. J., 1869, 2. Phila. ed., p. 20.

Troglodytes americana BREWER, Journ. Bost. Soc. N. H., 1837, 437.

Traglodites americanus THOMPSON, Nat. Hist. Vermont, 1853, 85.

Hylemalthous americanus CABANIS, Journ. für Orn., 1860, 407.

T[roglodytes] sylvestris (not of Gambel) CABANIS, Mus. Hein., i, 1850, 78.

TROGLODYTES AEDON PARKMANII (Audubon).

WESTERN HOUSE WREN.

Similar to *T. a. aedon*, but decidedly paler and grayer, with back and scapulars usually distinctly barred with dusky (very rarely with bars obsolescent), and size averaging slightly larger.

Adult male.—Length (skins), 98–130 (113); wing, 49.5–55.5 (52.6); tail, 38–50 (44.8); exposed culmen, 11.5–14 (13); tarsus, 15.5–18 (17.2); middle toe, 11–13.5 (12).^a

Adult female.—Length (skins), 98–120 (111); wing, 48–54 (51); tail, 39.5–47 (44.2); exposed culmen, 11–13 (12.7); tarsus, 16–18.5 (17.2); middle toe, 10–13 (11.7).^b

^aForty-three specimens.

^bTwenty-seven specimens.

Specimens from different geographic areas compare in average measurements as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Ten adult males from Pacific coast north of San Diego County	52.6	46.6	13	16.9	11.9
Nine adult males from San Diego County, California.....	52.9	45.7	13.3	17.2	11.8
Ten adult males from Rocky Mountains (Arizona to Montana)	53.1	44.8	13	17	12.2
Eight adult males from Texas	51.6	41.4	12.5	16.9	12.2
Six adult males from Mississippi Valley	52.6	42.6	13.2	18	12.1
Four adult males from Mexico.....	52.4	45.2	13	18	12
FEMALES.					
Eight adult females from Pacific coast north of San Diego County	50	45.7	12.2	16.9	12
Five adult females from San Diego County, California	53	45.7	12.8	17.6	11.9
Seven adult females from Rocky Mountain district.....	51.2	44.8	12.5	17.3	11.8
Four adult females from Mississippi Valley.....	50.7	41	12	17.2	12.7
Three adult females from Mexico.....	50.2	40.2	12.3	17.2	12.1

With a very large series (more than 250 specimens) for comparison I am unable to appreciate even the most minute average difference between specimens from the Pacific coast district and those from the interior (as far eastward as the eastern border of the prairie districts of the Mississippi Valley), and consequently can find no reason for recognizing two forms.

Western United States and Canada; north to British Columbia (Vancouver Island; Westminster; Westminster Junction; New Westminster; Mount Lehman; Ducks), Alberta (Rocky Mountains, latitude 55°) and Manitoba (Forks of Saskatchewan; Oak Point, latitude 50° 30'); eastward from Pacific coast to eastern border of the prairie districts of the upper Mississippi Valley (from Richland County, Illinois,^a northward); southern breeding limit not ascertained, but probably extending into northern Mexico; in winter nearly the whole of Mexico, as far south as States of Vera Cruz (Jalapa; Mirador; Las Vegas; Tlalcatlapan), Puebla (Huachinango; Metlaltoyuca; Tehuacan^b); Oaxaca (Huajuapam), Guerrero (Tlapa), and Michoacan (Zamora; Patzcuaro; Morelia^c).

Troglodytes ædon (not of Vieillot) SWAINSON and RICHARDSON, Fauna Bor.-Am., ii, 1831, 316 (Rocky Mts., lat. 55°).—SCLATER, Proc. Zool. Soc. Lond., 1859, 363 (Jalapa, Vera Cruz).—HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 41 (California).—HAYDEN, Trans. Am. Philos. Soc., xii, 1863, 163 (Valley of Missouri R.; Loup Fork of Platte R.).—HOLDEN, Proc. Bost. Soc. N. H., xv, 1872, 196 (Colorado).—ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 125 (Topeka, Kansas), 134 (Fort Hays, Kansas), 148 (Cheyenne, Wyoming; Colorado City, Colorado), 155 (South Park, Colorado); Am. Nat., vi, 1872, 265, in text (Leavenworth), 270 (Fort Hays).—SNOW, Birds Kansas, 1873, 6.—COUES, Birds Northwest, 1874, 32, part; Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 554 (Red R., North Dakota, and west to Missouri Coteau).—BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 82 (Tombstone, Arizona; crit.).—ALLEN and BREWSTER, Bull. Nutt. Orn. Club, viii, 1883, 155 (Colorado Springs, Colorado; crit.).—BECKHAM, Auk, ij, 1885, 140 (Pueblo, Colorado).—AGERSBERG, Auk, ii, 1885, 278 (s. e. South Dakota, breeding).—COOKE, Bird Migr. Miss. Val., 1888, 272 (n. to Oak Point, Manitoba, lat. 50° 30'; date of migration, etc.).—CHAPMAN, Bull. Am. Mus. N. H., x, 1898, 23 (Jalapa, Vera Cruz; crit.), 39 (Las Vegas, Vera Cruz, 8,000 ft.; crit.).

[*Troglodytes*] *ædon* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 7 (chiefly).

[*Troglodytes*] *ædon* NELSON, Bull. Essex Inst., viii, 1876, 97, 152 (n. e. Illinois, breeding).

Troglodytes ædon WOODHOUSE, Sitgreaves' Rep. Expl. Zuffi and Col. R., 1853, 67 (Indian Territory; Texas).—KENNICOTT, Trans. Ills. Agric. Soc., i, 1855, 583 (Illinois).—PRATTEN, Trans. Ills. Agric. Soc., i, 1855, 603 (Illinois).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 367, part (Loup Fork of Platte).—HOY, Ann. Rep. Smiths. Inst. for 1864 (1865), 438 (Missouri).—TRIPPE,

^a The occurrence, as a common summer resident, of only this form at the locality mentioned, near the eastern border of Illinois, and of only *T. a. ædon* in Knox County, Indiana, less than forty miles to the eastward, may possibly be explained by the positively known fact that both are recent immigrants, neither having occurred at the places mentioned previous to about 1870, *Thryomanes bewickii* having until then been the only "house wren" of that region. *T. a. ædon* has come from the east or northeast, and *T. a. parkmanni* from the west or northwest, until they have practically met (or perhaps by the present time overlapped) in the lower Wabash Valley.

^b Possibly breeding, a specimen taken May 4 being in the collection of the Biological Survey.

^c Possibly breeding, a specimen in worn summer plumage (unfortunately not dated) being in the National Museum collection.

- Proc. Bost. Soc. N. H., xv, 1873, 236 (centr. and s. Iowa).—BAIRD, BREWER and RIDGWAY, Hist. N. Am. Birds, i, 1874, 149, part (Missouri R.; Rocky Mts.).
- T[roglodytes] ædon* TRIPPE, Proc. Essex Inst., vi, 1871, 115 (Minnesota).
- Troglodytes fulvus* "Bonap"[arte] NUTTALL, Man. Orn. U. S. and Can., i, 1825, 422, part (Pembina, North Dakota).
- Troglodytes sylvestris* GAMBEL, Proc. Ac. Nat. Sci. Phila., iii, Oct., 1846, 113 (California; but name proposed as substitute for *T. americanus* Audubon, preoccupied).
- Troglodytes fulvus* (not *Troglodytes fulvus* Nuttall) ORNITHOLOGICAL COMMITTEE, Journ. Ac. Nat. Sci. Phila., vii, 1837, 193 (Columbia R.).
- Troglodytes fulvus* TOWNSEND, Journ. Ac. Nat. Sci. Phila., viii, 1839, 154 (Columbia R.).
- T[roglodytes] americanus* (not of Audubon) GAMBEL, Journ. Ac. Nat. Sci. Phila., ii, 1847, 33 (California).
- Troglodytes americanus* HEERMANN, Journ. Ac. Nat. Sci. Phila., ii, 1853, 263 (California); Rep. Pacific R. R. Surv., x, pt. iv., 1859, 41 (California).—HARRIS, Proc. Ac. Nat. Sci. Phila., vii, 1855, 309 (New Mexico); xi, 1859, 107 (do.).
- Troglodytes parkmanii* AUDUBON, Orn. Biog., v, 1839, 310 (Columbia R.; type now in coll. U. S. Nat. Mus.); Synopsis, 1839, 75; Birds Am., oct. ed., ii, 1841, 133, pl. 122.—TOWNSEND, Journ. Ac. Nat. Sci. Phila., 1839, 154.—NUTTALL, Man. Orn. U. S. and Can., 2d ed., i, 1840, 483.
- Troglodytes parkmanni* BONAPARTE, Consp. Av., i, 1850, 222.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 367; Rep. U. S. and Mex. Bound. Surv., ii, pt. 2, 1859, 13 (Charco Escondido, Nuevo Leon); Cat. N. Am. Birds, 1859, no. 271; Rep. Ives' Col. Exp., pt. v, 1861, 6; Review Am. Birds, 1864, 140.—XANTUS, Proc. Ac. Nat. Sci. Phila., 1859, 191 (Fort Tejon, California).—COOPER and SUTLEY, Rep. Pacific R. R. Surv., xii, pt. 2, 1860, 191 (Puget Sound, etc. Washington).—BLAKISTON, Ibis, 1862, 5 (Forks of Saskatchewan, breeding); 1863, 67 (Saskatchewan).—HAYDEN, Trans. Am. Philos. Soc., xii, 1863, 163 (Rocky Mts. to Pacific coast).—COUES, Ibis, 1865, 164 (Arizona); Proc. Ac. Nat. Sci. Phila., 1866, 78 (Fort Whipple, Arizona).—BROWN, Ibis, 1868, 421 (Vancouver I.).—COOPER, Orn. Cal., 1870, 71; Proc. Col. Ac. Sci., 1870, 75 (Colorado Valley, California).—MERRIAM, Rep. U. S. Geol. Surv. for 1872 (1873), 673 (North Fork, Idaho; Fort Ellis, Montana, etc.; descr. nest), 713 (Utah).—BENDIRE, Proc. Bost. Soc. N. H., xix, 1877, 113 (Camp Harney, e. Oregon; descr. nest).
- Troglodytes parkmani* AIKEN, Proc. Bost. Soc. N. H., xv, 1872, 196 (Colorado).
- Troglodytes parkmanii* STEVENSON, Prelim. Rep. U. S. Geol. Surv., 1871, 464 (Green R., Wyoming).
- Troglodytes ædon parkmanii* AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 721a.—SETON, Auk, iii, 1886, 327 (w. Manitoba, summer resident).—MERRILL (J. C.), Auk, v, 1888, 362 (Fort Klamath, e. Oregon); xv, 1898, 19 (Fort Sherman, Idaho, breeding).—BREWSTER, Auk, v, 1888, 362 (Fort Klamath; crit.).—FANNIN, Check List Birds Brit. Col., 1891, 43 (both sides of Cascade range).—ATTWATER, Auk, ix, 1892, 343 (San Antonio, Texas, migrant).—GRINNELL (J.), Pub. 2, Pasadena Ac. Sci., 1898, 48 (Los Angeles Co., California, resident).—RATHBUN (S. F.), Auk, xix, 1902, 139 (Seattle, Washington, breeding).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 448.—OBERHOLSER, Proc. U. S. Nat. Mus., xxvii, 1904, 201 (crit.).
- Troglodytes ædon parkmanii*? SCOTT, Auk, v, 1888, 163 (s. Arizona).
- T[roglodytes] ædon parkmanii* ALLEN, Auk, v, 1888, 164 (crit.).—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 609.
- [*Troglodytes ædon*] b. *parkmanii* RIDGWAY, Orn. Illinois, i, 1889, 94.

- Troglodytes aëdon* var. *parkmani* ALLEN, Am. Nat., vii 1873, 362.—TRIPPE, in Coues' Birds Northwest, 1874, 231 (Colorado, up to 10,500 ft.; habits; notes).
- Troglodytes aëdon* . . . var. *parkmani* HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 155 (Arizona).
- Troglodytes aëdon parkmani* ROBERTS and BENNER, Bull. Nutt. Orn. Club, v, 1880, 13 (Grant Co., Minnesota, breeding).—HANCOCK, Bull. Nutt. Orn. Club, viii, 1883, 179 (Woodlawn, Illinois).—AGERSBORG, Auk, ii, 1885, 278 (s. e. South Dakota, breeding).—GOSS, Auk, iii, 1886, 115 (Kansas, breeding).—EVERMANN, Auk, iii, 1886, 185 (Ventura Co., California, resident).—CHAPMAN, Bull. Am. Mus. N. H., iii, 1890, 152 (British Columbia; crit.).—NEHRLING, Our Native Birds, etc., i, 1893, 153, in text (habits).—GRINNELL (J.), Pacific Coast Avifauna, no. 3, 1902, 69.
- Troglodytes domesticus parkmani* COUES, Birds Col. Val., 1878, 171; Check List, 2d ed., 1882, no. 75.—MEARNS, Bull. Nutt. Orn. Club, iv, 1879, 163 (Fort Klamath, e. Oregon, breeding).
- T[roglodytes] d[omesticus] parkmani* COUES, Key N. Am. Birds, 2d ed., 1884, 278.
- [*Troglodytes aëdon*.] Var. *parkmanni* COUES, Key N. Am. Birds, 1872, 87.
- Troglodytes aëdon* . . . var. *parkmanni* COUES, Check List, 1873, no. 49a.—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 41 (Utah, resident), 57 (Denver, Colorado, May), 74 (Fort Garland, Colorado, breeding; descr. nest and eggs), 101 (New Mexico; Arizona); Zool. Expl. W. 100th Merid., 1875, 184 (localities in Utah, Colorado, and Arizona); Orn. Rep. Wheeler's Surv., 1876, 232 (Santa Barbara, Fort Tejon, and Mount Whitney, California).
- Troglodytes aëdon* . . . var. *parkmanni* RIDGWAY, Bull. Essex Inst., v, Nov., 1873, 180 (Colorado).—YARROW and HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 8 (Utah).
- Troglodytes aëdon*, var. *parkmanni* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 153.—ALLEN, Proc. Bost. Soc. N. H., xvii, 1874, 50 (Montana; North Dakota).
- Troglodytes aëdon*, var. *parkmanni* COUES, Birds Northwest, 1874, 32.—COOPER, Bull. Nutt. Orn. Club, i, 1876, 79–81 (breeding habits).
- Troglodytes aëdon*, *β. parkmanni* RIDGWAY, Field and Forest, iii, May, 1877, 196 (Colorado).
- [*Troglodytes aëdon*] *β. parkmanni* RIDGWAY, Orn. 40th Parallel, 1877, 422 (localities in Nevada and Utah; habits).
- Troglodytes aëdon*, *β. parkmanni* BELDING and RIDGWAY, Proc. U. S. Nat. Mus., i, 1879, 403 (Stockton and Calaveras Co., California).
- Troglodytes aëdon parkmanni* RIDGWAY, Bull. Essex Inst., vi, Oct., 1874, 172 (Sacramento, California); vii, 1875, 12 (Carson City, Nevada), 14 (Truckee Valley, Nevada); Proc. U. S. Nat. Mus., iii, 1880, 170; Nom. N. Am. Birds, 1881, no. 63a.—BELDING, Proc. U. S. Nat. Mus., v, 1883, 531 (Cerro I., Lower California), 535 (La Paz, etc., Lower California, winter).—COALE, Bull. Nutt. Orn. Club, viii, 1883, 120 (Larned, Kansas).
- T[roglodytes] aëdon parkmanni* HENSHAW, Orn. Rep. Wheeler's Surv., 1879, 288 (e. slope Sierra Nevada).
- T[roglodytes] aëdon parkmanni* RIDGWAY, Bull. Ills. State Labr. Nat. Hist., no. 4, 1881, 173 (Illinois).
- T[roglodytes] aëdon parkmanni* RIDGWAY, Man. N. Am. Birds, 1887, 554.
- Troglodytes aëdon parkmanni* BECKHAM, Proc. U. S. Nat. Mus., x, 1888, 691 (San Antonio, Corpus Christi, etc., Texas).
- [*Troglodytes domesticus*.] Subsp. *α. Troglodytes parkmanni* SHARPE, Cat. Birds Brit. Mus., vi., 1881, 250.
- Troglodytes aëdon*, var. *aztecus* BAIRD, Review Am. Birds, Sept., 1864, 139 (Jalapa, Vera Cruz, Mexico; coll. U. S. Nat. Mus.).

Troglodytes aztecus SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 545 (near Orizaba).
[*Troglodytes ædon*] var. *aztecus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 148.

T[roglodytes] ædon aztecus ALLEN, Auk, v, Apr., 1888, 164 (diagnosis; crit.).—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 610.

Troglodytes ædon aztecus CHAPMAN, Auk, v, 1888, 400.—MEARNS, Auk, vii, 1890, 262 (Mogollon Mts., Arizona).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 721b.—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1890, 63 (Manitoba, abundant summer resident; habits).—ALLEN, Bull. Am. Mus. N. H., v, 1893, 41 (Bavispe R., etc., Sonora).—FISHER (A. K.), North Am. Fauna, no. 7, 1893, 135 (localities in s. California).—ANTHONY, Zool., ii, 1893, 245 (San Pedro Martir Mts., Lower California).—RICHMOND and KNOWLTON, Auk, xi, 1894, 307 (s.-cent. Montana, breeding).—THOMAS, Auk, xii, 1895, 218 (Fort Keogh, Montana, breeding).—MERRIAM (F. A.), Auk, xiii, 1896, 122 (Twin Oaks, San Diego Co., California; habits).—COOKE, Bull. 37, Col. Agric. Coll., 1897, 120 (Colorado; summer resident, breeding from plains to 10,000 ft.).—BUTLER, Birds Indiana, 1897, 112 (extreme n. w. counties).—DAWSON, Auk, xiv, 1897, 180 (Okanogan Co., Washington, breeding).—MITCHELL, Auk, xv, 1898, 310 (San Miguel Co., New Mexico, breeding up to 10,000 ft.).—COUBEAUX, Ottawa Nat., 1900, 3 (s. Saskatchewan).—SILLOWAY, Bull. Univ. Mont., no. 3, Biol. ser., no. 1, 1901, 71 (Flathead Lake, Montana, breeding).—BREWSTER, Bull. Mus. Comp. Zool., xli, 1902, 201 (San José del Cabo, Triunfo, and San José del Rancho, Lower California, Sept. to Dec.; crit.).—GRINNELL (J.), Pacific Coast Avifauna, no. 3, 1902, 69.—OBERHOLSER, Proc. U. S. Nat. Mus., xxvii, 1904, 201 (crit.).

T[roglodytes] a[ædon] aztecus BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 449.

Troglodytes ædon marianæ SCOTT (W. E. D.), Auk, ii, Oct., 1885, 351 (Pima Co., Arizona; coll. W. E. D. Scott^a); v, 1888, 163 (Santa Catalina Mts., Arizona).

TROGLODYTES BRUNNEICOLLIS BRUNNEICOLLIS Sclater.

BROWN-THROATED WREN.

Adults (sexes alike).—Pileum and hindneck broccoli brown, the feathers with slightly darker centers, producing an indistinctly squamate effect; rest of upper parts more decidedly brown, deepening into almost mars brown on rump and upper tail-coverts, the whole surface more or less distinctly barred with dusky; posterior part of rump with a few concealed spots of white; outermost primaries with outer webs notched or serrated with very pale buffy brown or brownish white; a broad but not sharply defined superciliary stripe of brownish buff, the lores similar in color but tinged with grayish brown; auricular region streaked with brownish buff and grayish brown, the upper margin darker, producing a narrow dusky postocular streak; malar and sub-orbital regions, chin, throat, chest, and upper breast buffy cinnamon or cinnamon-buff, the first two usually mottled or narrowly barred with grayish brown; lower median portion of breast paler cinnamon-buff, fading into nearly white on abdomen, the latter more or less

^a Types now in coll. Am. Mus. Nat. Hist.

flecked or barred with dusky; sides and flanks buffy brown barred with dusky, sometimes with paler bars also; under tail-coverts pale buffy brown, tipped with white and barred with dusky; maxilla dark brown or brownish black, with paler tomia; mandible paler brown, still paler basally; legs and feet clear (usually light) horn brownish (in dried skins).

Young.—Similar to adults but under parts more uniform, with sides and flanks very indistinctly, if at all, barred, the under tail-coverts very narrowly and faintly barred, and feathers of breast usually narrowly margined with dusky.

Adult male.—Length (skins), 105–116 (110); wing, 50–53 (51.2); tail, 40–44 (42.2); exposed culmen, 11.5–14 (12.6); tarsus, 18.5–20 (19.4); middle toe, 12–14 (13.2).^a

Adult female.—Length (skins), 110–121 (113); wing, 49–52 (50.5); tail, 41–44 (42.5); exposed culmen, 12–13 (12.8); tarsus, 18–20 (18.9); middle toe, 12.5–13 (12.9).^b

Southern and central portions of Mexican plateau, from States of San Luis Potosi (near Jesus Maria), Hidalgo (Real del Monte; Apixaco), Mexico (City of Mexico; Amecameca; Popocatepetl; Salazar), and Zacatecas (Plateado; Monte Escobedo), southward through States of Vera Cruz, Puebla, Morelos, Tlaxcala, and Michoacan to Oaxaca (La Parada; Cinco Señores; near Oaxaca City) and Guerrero (Chilpancingo; Omilteme).

Troglodytes hyenalis (not *T. hiemalis* Vieillot) SCLATER, Proc. Zool. Soc. Lond., 1856, 290 (El Jacale, near Cordova, Vera Cruz, Mexico).

(?) *Troglodytes aëdon* ? SCLATER, Proc. Zool. Soc. Lond., 1859, 363 (Jalapa, Vera Cruz).

Troglodytes brunneicollis SCLATER, Proc. Zool. Soc. Lond., 1858, 297 (La Parada, Oaxaca; s. w. Mexico; coll. A. Sallé); 1859, 372 (Cinco Señores, Oaxaca); Cat. Am. Birds, 1862, 23 (Cinco Señores; Jalapa).—BAIRD, Review Am. Birds, 1864, 144 (La Parada; Orizaba, Vera Cruz).—SCLATER and SALVIN, Exotic Orn., pt. iii, 1867, 46, pl. 23, fig. 2.—SUMICHRIST, Mem. Bost. Soc. N. H., i, 1869, 545 (alpine reg., Orizaba, 1,500–2,500 meters alt.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 103, part (La Parada and Cinco Señores, Oaxaca; El Jacale, Jalapa, and alpine reg., Vera Cruz).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 261.—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 136 (Teziutlan, Puebla).—COX, Auk, xii, 1895, 358 (Mount Orizaba, Vera Cruz, 11,000 ft.).—CHAPMAN, Bull. Am. Mus. N. H., x, 1898, 39 (Las Vigas, Vera Cruz, 8,000 ft.).

[*Troglodytes brunneicollis* BAIRD, Review Am. Birds, 1864, 138 (diagnosis).—GRAY, Hand-list, i, 1869, 191, no. 2613.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 7, part.

[*Troglodytes brunneicollis* SCLATER, Proc. Zool. Soc. Lond., 1862, 18 (La Parada, Oaxaca).—RIDGWAY, Man. N. Am. Birds, 1887, 554.

Troglodytes brunneicollis brunneicollis OBERHOLSER, Proc. U. S. Nat. Mus., xxvii, no. 1354, Jan. 23, 1904, 200 (crit.).

Hylemathrous brunneicollis CABANIS, Journ. für Orn., 1860, 406.

^aTen specimens.

^bSix specimens.

TROGLODYTES BRUNNEICOLLIS NITIDUS Nelson.

ZEMPOALTEPEC WREN.

Similar to *T. b. brunneicollis*, but decidedly deeper in color, the under parts, even in faded midsummer plumage, deeper, and more extensively buffy cinnamon. Young with entire under parts buffy cinnamon, deepening into cinnamon-brown on flanks.

Adult male.—Length (skins), 110–113 (111.5); wing, 50; tail, 40–42.5 (41.2); tarsus, 18–20 (19); middle toe, 12–13 (12.5).^a

Dense humid forests of Mount Zempoaltepec, Oaxaca.

Troglodytes brunneicollis nitidus NELSON, Proc. Biol. Soc. Wash., xvi, Nov. 3, 1903, 158 (Mount Zempoaltepec, Oaxaca, 6,500 ft.; coll. U. S. Nat. Mus.).

TROGLODYTES BRUNNEICOLLIS CAHOONI (Brewster).

CAHOON'S WREN.

Similar to *T. b. brunneicollis*, but paler, the chest, etc., dull cream buff (in midsummer) to pale cinnamon or cinnamon-buff (in winter) with flanks usually less heavily barred, the brown of upper part grayer.

Adult male.—Length (skins), 104–118 (111); wing, 49–54 (51.7); tail, 40–47 (43.7); exposed culmen, 12–14 (12.8); tarsus, 18–18.5 (18.1); middle toe, 12–13 (12.7).^a

Adult female.—Length (skins), 104–121 (113); wing, 48–52.5 (50); tail, 39.5–47 (42.4); exposed culmen, 12–14 (13); tarsus, 15.5–18 (17.6); middle toe, 11.5–13 (12.5).^b

Northern portion of Mexican plateau, in States of Sonora (mountains near Oposura; Bavispe River), Chihuahua (Colonia Garcia; near Guadalupe Calvo; Pinos Altos; Bravo; Jesus Maria), Coahuila (Sierra Guadalupe), Nuevo Leon (Monterey), Tamaulipas (Miquihuana), Durango (El Salto), and Jalisco (near Bolaños; Sierra Bolaños; Sierra Madre Nayarit).

Troglodytes cahooni c BREWSTER, Auk, v, Jan., 1888, 94 (mountains near Oposura, Sonora, n. w. Mexico; coll. W. Brewster).

Troglodytes brunneicollis cahooni OBERHOLSER, Proc. U. S. Nat. Mus., xxvii, no. 1354, Jan. 23, 1904, 200 (crit.).

TROGLODYTES RUFOCILATUS Sharpe.

RUFOUS-BROWED WREN.

Adults (sexes alike).—Pileum and hindneck plain deep brown (between mummy brown and prouts brown); rest of upper parts similar but more or less distinctly barred with dusky; outer webs of exte-

^aTwo specimens; both have the tip of the maxilla broken off.

^bTen specimens.

^c"To J. C. Cahoon, of Taunton, Mass."

rior primaries notched or serrated with brownish white or very pale brownish buff; middle and greater wing-coverts with a terminal spot of whitish or pale brownish buff; a conspicuous superciliary stripe of ochraceous-buff; a deep brown postocular streak; auricular region (except upper margin), suborbital, and malar regions, chin, throat, and chest, ochraceous-buff, deepening on sides of throat and chest into tawny or tawny-ochraceous; breast and abdomen buff or pale ochraceous-buff; sides and flanks light brown (nearly raw umber) heavily barred with blackish, and pale brownish buffy (the latter on tips of feathers); under tail-coverts whitish, tinged with brown and irregularly barred with black; maxilla blackish with paler tomia; mandible blackish or dusky terminally, pale basally; legs and feet deep or dark horn color (in dried skins).

Young.—Similar to adults, but back, scapulars, sides, and flanks less distinctly barred, and feathers of breast narrowly margined with dusky.

Adult male.—Length (skin), 100; wing, 50; tail, 35; exposed culmen, 11.5; tarsus, 18.5; middle toe, 14.^a

Adult female.—Length (skin), 98; wing, 47; tail, 33; exposed culmen, 13; tarsus, 16; middle toe, 13.^b

Highlands of Guatemala (Volcan de Fuego; Volcan de Santa Maria, near Quezaltenango) and Chiapas (San Cristobal).

Troglodytes brunneicollis (not of Sclater, 1858) SALVIN and SCLATER, Ibis, 1860, 273 (Volcan de Fuego, Guatemala).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 103, part (Volcan de Fuego).

[*Troglodytes*] *brunneicollis* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 7, part (Guatemala).

[*Troglodytes brunneicollis*.] Subsp. α . *Troglodytes rufociliatus* SHARPE, Cat. Birds Brit. Mus., vi, 1881, 262 (Chirostemon forest, Volcan de Fuego, Guatemala, alt. 10,000 ft.; coll. Salvin and Godman).

Troglodytes rufociliatus REICHENOW and SCHALOW, Journ. für. Orn., 1884, 430 (reprint of orig. descr.).—OBERHOLSER, Proc. U. S. Nat. Mus., xxvii, 1904, 200 (crit.).

[*Troglodytes*] *rufociliatus* RIDGWAY, Man. N. Am. Birds, 1887, 554.

^aOne specimen, from Quezaltenango, in coll. G. S. Miller.

^bOne specimen, from San Cristobal, Chiapas. Another specimen, not sexed, but probably a male, and one from Volcan de Santa Maria, Guatemala, measure, respectively, as follows.

Locality.	Wing.	Tail	Ex- posed culmen	Tarsus	Middle toe.
One adult from San Cristobal, Chiapas	49	35	13	18	13
One adult from Volcan de Santa Maria, Guatemala.....	50	38	.....	18	14

TROGLODYTES OCHRACEUS Ridgway.

IRAZÚ WREN.

Adults (sexes alike).—Above plain tawny brown (between mummy brown and russet), approaching deep russet on pileum, the rump without distinct concealed spots of paler; wing-coverts and secondaries similar in color to back, etc., the greater coverts sometimes with very faint, narrow bars of dark grayish, the secondaries with more distinct bars of dusky; primaries lighter and more buffy brown, more broadly and distinctly barred with dusky; tail more grayish brown, narrowly and more or less irregularly barred with dusky; a broad and conspicuous superciliary stripe of ochraceous-buff or light tawny-ochraceous; a broad postocular streak, occupying upper portion of auricular region, tawny-brown; rest of auricular region, suborbital region, and malar region ochraceous-buff or light tawny-ochraceous, the chin and upper throat similar but slightly paler; lower throat and chest paler ochraceous-buff, passing into duller or more brownish buff on sides, the flanks deep brownish buff or wood brown; breast and abdomen buffy white, the lower abdomen more strongly tinged with buff; under tail-coverts brownish buff, tipped with buffy white and barred with dusky; maxilla dusky horn color, with paler tomia; mandible paler horn color, more or less extensively paler on lower basal portion; legs and feet pale yellowish brown (in dried skins).

Young.—Similar to adults, but under tail-coverts immaculate brownish buff and feathers of chest very faintly margined at tips with dusky.

Adult male.—Length (skins), 95.5–101 (99); wing, 46–47.5 (46.5); tail, 30–33.5 (31.3); exposed culmen, 13.5–14 (13.8); tarsus, 17.5–18 (17.6); middle toe, 11–11.5 (11.3).^a

Adult female.—Length (skin), 100; wing, 46; tail, 31.5; exposed culmen, 13.5; tarsus, 17.5; middle toe, 11.^b

High mountains of Costa Rica (Volcan de Irazú) and Chiriqui (Boquete, Volcan de Chiriqui, 4,000 to 4,500 feet).

Troglodytes solstitialis (not of Sclater) SALVIN and GODMAN, Biol. Centr.-Am. Aves, i, 1880, 102, part (Costa Rica; Colombia?).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 260, part (Costa Rica; Antioquia, Colombia?).

Troglodytes(?) ochraceus RIDGWAY, Proc. U. S. Nat. Mus., iv, sig. 21, Mar. 10, 1882, 334 (Volcan de Irazú, Costa Rica, coll. U. S. Nat. Mus.).

Troglodytes ochraceus ZELEDON, Cat. Aves de Costa Rica, 1882, 3; Proc. U. S. Nat. Mus., viii, 1885, 105 (Costa Rica); Anal. Mus. Nac. Costa Rica, i, 1887, 106.—REICHENOW and SCHALOW, Journ. für Orn., 1884, 430 (reprint of orig. descr.).—BANGS, Proc. New Engl. Zool Club, iii, 1902, 53 (Boquete, Chiriqui, 4,000 to 4,500 ft. alt.).—OBERHOLSER, Proc. U. S. Nat. Mus., xxvii, 1904, 200 (crit.).

^a Three specimens, from Boquete, Chiriqui.

^b One specimen, from Boquete.

TROGLODYTES MESOLEUCUS (Sclater).

SANTA LUCIA WREN.

Adults (sexes alike).—Upper parts plain grayish brown or light sepia anteriorly, brightening posteriorly into russet-brown on rump and upper tail-coverts; rump with rather large roundish concealed spots of white, the feathers dark slate color basally; wings and tail brown, narrowly barred (except on smaller wing-coverts) with dusky, the bars broader on primaries and outermost rectrices; an indistinct superciliary stripe of pale buff or buffy whitish; lores and eyelids white; auricular region light brown, streaked with buffy whitish, its upper portion plain brown, producing a rather distinct postocular streak; malar region and under parts white, passing on sides of neck, sides, and flanks into cinnamon; under tail-coverts pale cinnamon or cinnamon-buff, broadly tipped with white and sparsely barred with dusky, at least on the longer coverts; axillars and under wing-coverts immaculate white; maxilla dusky brown, with paler tomia; mandible dull brownish yellow basally (in dried skins), more or less extensively dusky terminally; legs and feet brownish (in dried skins).

Adult male.—Length (skins), 103–104 (103.5); wing, 53; tail, 38; exposed culmen, 17; tarsus, 18–18.5 (18.2); middle toe, 13–14 (13.5).^a

Adult female.—Length (skins), 102–107 (104.5); wing, 52–54 (53); tail, 37.5–38.5 (38); exposed culmen, 17; tarsus, 18.5–19 (18.7); middle toe, 13–13.5 (13.2).^b

Island of Santa Lucia, Lesser Antilles.

Thryothorus mesoleucus SCLATER, Proc. Zool. Soc. Lond., 1876, 14 (Santa Lucia, Lesser Antilles; coll. P. L. Sclater); 1889, 395.—ALLEN, Bull. Nutt. Orn. Club, v, 1880, 166.—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 223.—CORY, Auk, iii, 1886, 25; Birds W. I., 1889, 39; Cat. W. I. Birds, 1892, 19, 120, 133.

[*Thryothorus*] *mesoleucus* CORY, List Birds W. I., 1885, 7.

Troglodytes mesoleucus OBERHOLSER, Proc. U. S. Nat. Mus., xxvii, no. 1354, Jan. 23, 1904, 209 (crit.).

TROGLODYTES MUSICUS (Lawrence).

ST. VINCENT WREN.

Similar to *T. mesoleucus*, but much larger (except bill), upper parts brighter brown, and lateral under parts brighter, or more extensively, cinnamon (the breast and abdomen often tinged with that color), the under tail-coverts deeper cinnamon, not distinctly, if at all, whitish at tips and with dusky bars reduced to spots (usually small), or often altogether absent.

^a Two specimens.

^b Two specimens. Ten adults with sex undetermined measure as follows: Length (skins), 106–110.5 (108); wing, 47.5–53.5 (50.4); tail, 33.5–38 (36.3); exposed culmen, 16–18 (17.2); tarsus, 17–18.5 (18.1); middle toe, 11.5–13.5 (12.5).

Young.—Similar to adults, but white of under parts more or less strongly suffused with cinnamon-buff, under tail-coverts immaculate cinnamon or tawny, and (sometimes at least) feathers of chest or throat very narrowly and faintly margined with dusky.

Adult male.—Length (skins), 117–137 (126.3); wing, 59–60 (59.2); tail, 40–45.5 (43.4); exposed culmen, 16–18 (17); tarsus, 20–21.5 (20.8); middle toe, 14.5–15.5 (14.9).^a

Island of St. Vincent, Lesser Antilles.

Thryothorus musicus LAWRENCE, ANN. N. Y. Acad. Sci., i, June 1878, 148 (St. Vincent, Lesser Antilles; coll. G. N. Lawrence); Proc. U. S. Nat. Mus., i, 1878, 189, 486 (habits).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 223.—CORY, Auk, iii, 1886, 24; Ibis, 1886, 472 (St. Vincent); Birds W. I., 1889, 18; Cat. W. I. Birds, 1892, 18, 120, 134.

[*Thryothorus*] *musicus* CORY, List Birds W. I., 1885, 7.

Troglodytes musicus OBERHOLSER, Proc. U. S. Nat. Mus., xxvii, no. 1354, Jan. 23, 1904, 209 (crit.).

(TROGLODYTES GRENADENSIS (Lawrence)).

GRENADA WREN.

Similar in large size to *T. martinicensis*, but upper parts much brighter, more tawny, brown, flanks deeper rufous-cinnamon or cinnamon-rufous, and under tail-coverts plain cinnamon-rufous; similar in coloration to *T. rufescens*, but wing and bill longer and tail shorter, and coloration decidedly lighter; similar in coloration of upper parts to *T. mesoleucus*, but without white on under parts.

Adults (sexes alike).—Above plain rufous-brown (between russet and mars brown), brighter (approaching burnt-umber) on rump and upper tail-coverts, duller on pileum; greater wing-coverts narrowly and rather indistinctly barred with dusky, the secondaries and tail narrowly and distinctly barred with blackish; primaries more broadly barred with blackish, their terminal portion plain dusky; a rather distinct superciliary stripe of cinnamon-buff; lores and eyelids similar but more whitish; sides of head otherwise light cinnamon-buff, more or less (always indistinctly) flecked and streaked with brown, the upper portion of auricular region mostly brown, forming an indistinct postocular streak; chin and throat pale cinnamon-buff, deepening on chest into deep cinnamon-buff, the remaining under parts still deeper in color, the sides, flanks, and under tail-coverts russet; under tail-coverts sometimes immaculate, usually with more or less distinct bars or spots of dusky on terminal portion of the longer feathers; maxilla dusky brown, with paler tomia; mandible dull light yellowish (in dried skins); legs and feet light brownish (in dried skins).

Young.—Similar to adults, but feathers of chest very faintly margined terminally with dusky, and under tail-coverts always immaculate.

^a Five specimens. I have not seen a specimen determined as female.

Adult female.—Length (skin), 125; wing, 53; tail, 35.5; exposed culmen, 17; tarsus, 19; middle toe, 13.5.^a

Island of Grenada, Lesser Antilles.

Thryothorus grenadensis LAWRENCE, Ann. N. Y. Acad. Sci., i, July, 1878, 161 (Grenada, Lesser Antilles; coll. U. S. Nat. Mus.); Proc. U. S. Nat. Mus., i, 1879, 268 (habits; descr. nest), 486.—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 228.—CORY, Auk., iii, 1886, 25; Birds W. I., 1889, 39; Cat. W. I. Birds, 1892, 18, 120, 134.—WELLS, Proc. U. S. Nat. Mus., ix, 1886, 611 (habits; descr. nest and eggs).

[*Thryothorus*] *grenadensis* CORY, List Birds W. I., 1885, 7.

Troglodytes grenadensis OBERHOLSER, Proc. U. S. Nat. Mus., xxvii, no. 1354, Jan. 23, 1904, 210 (crit.).

TROGLODYTES MARTINICENSIS (Sclater).

MARTINIQUE WREN.

Similar to *T. guadeloupensis*, but larger (except tail, which is shorter) and color of upper parts much duller; similar in larger size to *T. grenadensis*, but upper parts much duller, more grayish, brown, flanks paler cinnamon, and under tail-coverts barred with black and tipped with white.

Adults (sexes alike).—Above brown (between prouts brown and sepia or bistre), darker (deep to dark sepia) on pileum, brighter on rump and upper tail-coverts, the back and scapulars usually narrowly, but indistinctly, barred with dusky; rump with a few guttate or wedge-shaped spots or streaks of white, the feathers dark slate color basally; greater wing-coverts, secondaries, and tail narrowly barred with blackish or dusky; primaries dusky, their outer webs spotted with cinnamon or dull brownish white; sides of head (including an indistinct superciliary stripe) and under parts buffy cinnamon, deeper and browner on flanks, which are sometimes faintly barred with darker; under tail-coverts tipped with paler (sometimes with white) and broadly barred with blackish or dusky; maxilla blackish brown or dusky horn color, with paler tomia; mandible pale brownish or dull yellowish (in dried skins); legs and feet brownish (in dried skins).

Adult male.—Length (skins), 110–117 (113.5); wing, 56–59 (57.8); tail, 38–40 (38.7); exposed culmen, 17–17.5 (17.2); tarsus, 20.5–21.5 (21); middle toe, 13.5–15 (14.3).^b

Adult female.—Length (skins), 105–108 (106.5); wing, 53; tail, 35.5; exposed culmen, 16; tarsus, 19.5–20 (19.7); middle toe, 14.5.^c

Island of Martinique, Lesser Antilles.

^aOne specimen (the type). The three other adults examined are not sexed. Their measurements are as follows: Length (skins), 110–112 (110.7); wing, 54–56.5 (55.2); tail, 38–39 (38.7); exposed culmen, 17–18 (17.5); tarsus, 20; middle toe, 14–14.5 (14.3).

^bThree specimens.

^cTwo specimens.

Thryothorus martinicensis SCLATER, Proc. Zool. Soc. Lond., 1866, 321 (Martinique, Lesser Antilles; coll. P. L. Sclater).—LAWRENCE, Proc. U. S. Nat. Mus., i, 1879, 352 (habits; crit.), 486.—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 228.—CORY, Auk, iii, 1886, 23; iv, 1887, 95; Birds W. I., 1889, 37; Cat. W. I. Birds, 1892, 18, 120, 133.

[*Thryothorus*] *martinicensis* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 7.—CORY, List Birds W. I., 1885, 7.

[*Troglodytes*] *martinicensis* GRAY, Hand-list, i, 1869, 191, no. 2619.

Troglodytes martinicensis OBERHOLSER, Proc. U. S. Nat. Mus., xxvii, 1904, 30 (crit.).

TROGLODYTES RUFESCENS (Lawrence).

DOMINICAN WREN.

Adults (sexes alike).—Above deep chestnut-brown (between burnt-umber and vandyke), the back and scapulars sometimes showing very indistinct narrow bars of darker; wing-coverts, secondaries, and tail rather duller chestnut-brown, narrowly barred with dusky; primaries dusky, their outer webs spotted or broadly barred with brown; an indistinct superciliary stripe of light russet or buffy cinnamon; rest of sides of head similar but more or less obscured by indistinct brownish streaking, the upper portion of the auricular region with brown prevailing; under parts deep buff-tawny, or between cinnamon and cinnamon-rufous, slightly paler on chin, throat, and center of abdomen. deeper (cinnamon-rufous) on flanks; under tail-coverts broadly barred with dusky; maxilla brownish black or dusky horn color, with paler tonia; mandible dull yellowish (in dried skins); legs and feet light brownish or horn color.

Young.—Similar to adults, but upper parts darker and duller brown (vandyke), and feathers of under parts of body (especially the flanks) narrowly margined with dusky.

Adult male.—Length (skins), 113–126 (120.6); wing, 51–52.5 (51.5); tail, 37.5–40 (38.8); exposed culmen, 15–16 (15.3); tarsus, 19.5–20 (19.8); middle toe, 13–14.5 (13.8).^a

Island of Dominica, Lesser Antilles.

Thryothorus rufescens LAWRENCE, Ann. N. Y. Acad. Sci., i, Oct., 1877, 47 (Dominica, Lesser Antilles; coll. U. S. Nat. Mus.); Proc. U. S. Nat. Mus., i, 1878, 54 (Dominica; (descr. nest), 486, part (Dominica).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 228.—CORY, Auk, iii, 1886, 24, part (Dominica); Birds W. I., 1889, 38; Cat. W. I. Birds, 1892, 18, 120, part (Dominica).—SCLATER, Proc. Zool. Soc. Lond., 1889, 326 (Dominica).

[*Thryothorus*] *rufescens* CORY, List Birds W. I., 1885, 7, part (Dominica).

Troglodytes rufescens OBERHOLSER, Proc. U. S. Nat. Mus., xxvii, no. 1354, Jan. 23, 1904, 210 (crit.).

^aThree specimens. No females seen by me, most of the specimens examined having sex undetermined.

TROGLODYTES GUADELOUPENSIS (Cory).

GUADELOUPE WREN.

Similar to *T. rufescens*, but duller in color, the upper parts less rufescent brown (nearer prouts brown or deep mummy brown than vandyke or burnt-umber), the under parts more buffy cinnamon; under tail-coverts tipped with white, and flanks usually more or less barred with dusky.

Adult male.—Length (skins), 100–127 (115);^a wing, 50.5–53.5 (51.6);^b tail, 36.5–42.5 (38.8);^c exposed culmen, 15–16.5 (15.5);^d tarsus, 17.5–19 (18.3);^d middle toe, 12.5–14 (13.5).^d

Adult female.—Length (skins), 101–117 (107); wing, 48–49 (48.5); tail, 39–39.5 (39); exposed culmen, 15–16 (15.3); tarsus, 18.5–19 (18.8); middle toe, 13–13.5 (13.3).^e

Island of Guadeloupe (Grande Terre), Lesser Antilles.

Thryothorus rufescens (not of Lawrence, 1877) LAWRENCE, Proc. U. S. Nat. Mus., i, 1879, 453 (Guadeloupe), 486, part (Guadeloupe).—CORY, W. I., 1885, 7, part (Guadeloupe); Auk, iii, 1886, 24, part (Guadeloupe); Birds W. I., 1889, 38, part (Guadeloupe); Cat. W. I. Birds, 1892, 18, 120, part (Guadeloupe).

[*Thryothorus*] *rufescens* CORY, List Birds W. I., 1885, 7, part (Guadeloupe).

Thryothorus guadeloupensis CORY, Auk, iii, July, 1886, 381 (Grande Terre, Guadeloupe, Lesser Antilles; coll. C. B. Cory); v, 1888, 157; Ibis, 1886, 474 (Grande Terre); Birds W. I., 1889, 286; Cat. W. I. Birds, 1892, 18, 120, 133, 156.

Troglodytes guadeloupensis OBERHOLSER, Proc. U. S. Nat. Mus., xxvii, no. 1354, Jan 23, 1904, 209 (crit.).

Genus OLBIORCHILUS Oberholser.

Anorthura (not of Rennie, 1831^f) of Authors.

(?) *Nannus* BILLBERG, Synop. Faunæ Scand., i, pt. 2, 1828, 57. (Type, *Motacilla troglodytes* Linnaeus? *g.*)

Olbiorchilus^h OBERHOLSER, Auk, xix, no. 2, April, 1902, 177. (Type, *Motacilla troglodytes* Linnaeus.)

Very small Troglodytidae (wing less than 55 mm.) resembling *Troglodytes*, but with the tail not more than two-thirds as long as wing and shorter than combined length of tarsus and middle toe (with claw), and with the bill slenderly straight-subulate.

^aSeven specimens.

^bFour specimens.

^cSix specimens.

^dEight specimens.

^eThree specimens.

^fSee Newton, Dictionary of Birds, 1896, 1051; Howe, Auk, xix, 1902, 89; Oberholser, Auk, xix, 1902, 175.

^gThis work not seen by anyone in America, and there is doubt as to whether the author based the new name exclusively on *M. troglodytes* or, like Rennie in the case of *Anorthura*, merely gave the name *Nannus* as a substitute for *Troglodytes*.

^hFrom "ὄλβιο, felix; ὀρχίλος, regulus."

Bill shorter than head, very slender, straight-subulate, its basal depth and width about equal; exposed culmen shorter than middle toe without claw, straight to near extreme tip, where very slightly decurved; gonys decidedly shorter than distance from nostril to tip of maxilla, straight; maxillary tomium nearly straight, without trace of subterminal notch. Nostril longitudinal, narrowly cuneate or guttate (pointed anteriorly), overhung by a distinct excurrent corneous operculum, posteriorly in contact with feathering of latero-frontal antiae. Rictal bristles obsolete. Wing short, rounded; seventh and sixth, or seventh, sixth, and fifth, primaries longest, the eighth equal to or slightly shorter than fifth; ninth equal to first or second, about twice as long as tenth or slightly less. Tail two-thirds as long as wing, much rounded, the rectrices relatively narrow, with rounded tip. Tarsus longer than middle toe with claw, decidedly more than one-third as long as wing, the acrotarsium distinctly scutellate, the planta tarsi booted; outer toe (without claw) reaching to slightly beyond second (subterminal) joint of middle toe, its claw falling short of base of middle claw; inner toe (without claw) reaching to, but not beyond, subterminal joint of middle toe; hallux (without claw) as long as outer toe (without claw) but much stouter, its claw shorter than the digit; basal phalanx of middle toe adherent to outer toe for nearly its entire length, to inner toe for half its length, or a little more.

Coloration.—Above brown, more or less barred (sometimes narrowly and indistinctly) with dusky, at least on wings and tail; narrow superciliary stripe and under parts pale brownish, posteriorly more or less barred (irregularly) with dusky.

Nidification.—Nest built among roots of upturned trees, in cavities of old logs, stumps, etc., among rocks, in thickets, or in lower part of dense evergreens, occasionally in buildings; domed or oven-shaped, with entrance in one side; composed of various materials, usually selected to correspond with its surroundings (externally of green moss, if in mossy places, etc.). Eggs white, usually speckled with reddish brown.

Range.—Colder portions of northern hemisphere. (Several species.)

KEY TO THE SPECIES AND SUBSPECIES OF *OLBIORCHILUS*.

- a. Smaller (wing 40-50, averaging much less than 50, exposed culmen 10-13).
 - b. Bill smaller (exposed culmen 10-12.5, averaging less than 12); coloration darker.
 - c. Duller in color; bill stouter. (Eastern North America.)
Olbiorchilus hiemalis hiemalis (p. 597)
 - cc. Brighter and more rufescent in color; bill more slender. (Western United States and British Columbia; southern Alaska.)
Olbiorchilus hiemalis pacificus (p. 600)
 - bb. Bill larger (exposed culmen 12-13, averaging more than 12); coloration paler. (Kadiak Island, Alaska.) *Olbiorchilus hiemalis halleri* (p. 602)
- aa. Larger (wing 48.5-55, averaging more than 50, exposed culmen 13-15).

- b. Coloration paler, more tawny; slightly smaller (adult male averaging, wing 51.7, exposed culmen 14, tarsus 19.2; adult female, wing 50, exposed culmen 14.2, tarsus 19.2). (Unalaska Island, Aleutian chain, and St. George Island, Pribilof group, Alaska.).....*Olbiorchilus alascanensis* (p. 602)
- bb. Coloration darker, more sooty; slightly larger (adult male averaging, wing 54, exposed culmen 15, tarsus 20; adult female, wing 51, exposed culmen 15, tarsus 20). (Westernmost Aleutian Islands.)...*Olbiorchilus meligerus* (p. 604)

OLBIORCHILUS HIEMALIS HIEMALIS (Vieillot).**WINTER WREN.**

Adults (sexes alike).—Above rufescent brown (between mummy brown and prouts brown), more strongly rufescent posteriorly, the back, scapulars, and rump more or less distinctly barred with dusky, often with more or less distinct whitish bars immediately succeeding the dusky ones; feathers of rump with concealed roundish spots of white, their basal portion dark slate color; tail light chestnut-brown or rufescent mars brown, narrowly (sometimes indistinctly) barred with dusky; wings similar in color to back, etc. (slightly less reddish than tail), more or less distinctly barred with dusky, the outermost primaries with dusky bars much broader and interspaces buffy or whitish; tip of middle coverts usually with a small mesial streak or spot of whitish; a narrow superciliary stripe of brownish buffy; a more or less distinct narrow postocular stripe of brown; suborbital and auricular regions brownish buffy, narrowly streaked (more or less distinctly) with brown; malar region, chin, throat, and chest (sometimes median portion of breast, more rarely abdomen also) light wood brown or pale cinnamon, the feathers usually obsoletely paler mesially, the lower throat and chest sometimes speckled with dusky; rest of under parts more or less densely speckled or vermiculated with dusky on a pale wood brown or cinnamon ground-color, these markings heavier and more regularly transverse, on flanks; under tail-coverts clear rusty brown, barred with black and with a V-shaped subterminal mark of white; axillars and under wing-coverts pale grayish brown or dull grayish white, the former faintly barred terminally with darker, the latter more or less speckled with dusky; maxilla dusky brown or blackish, with paler tomia; mandible pale brownish; iris brown; legs and feet light brown (in dried skins).

Young.—Essentially like adults, but brown of back, scapulars, rump, and upper tail-coverts without bars, superciliary and postocular stripes indistinct, and under parts darker, with feathers more or less distinctly margined with dusky.

Adult male.—Length (skins), 87–92 (90); wing, 45–50 (47.6); tail, 28–32 (30.3); exposed culmen, 11–12 (11.2); tarsus, 18–19.5 (18.5); middle toe, 12–13 (12.8).^a

^aTen specimens.

Adult female.—Length (skins), 82–94 (89); wing, 40–47 (44.8); tail, 25–30 (27.8); exposed culmen, 10.5–12 (11.1); tarsus, 17–18 (17.8); middle toe, 11–13 (12).^a

Eastern United States and Canada; north to Nova Scotia, Prince Edward Island, New Brunswick (including Grand Manan), Quebec (Godbout), Ontario (north to Moose Factory), and Manitoba (east of Lake Winnipeg); breeding southward to Massachusetts (Lynn, Berkshire County, etc.), New York (Lewis, Oneida, Madison, Tompkins, and Greene counties), Michigan (Mackinac Island; Wequetonsing), and Wisconsin (Outagamie County), more rarely to northern Indiana (Carroll County), and Illinois (Ogle County) and central Iowa, and through mountain districts of Pennsylvania, Maryland, Virginia, and West Virginia to western North Carolina (Black Mountains; Roan Mountain); wintering from near southern breeding limit to northern Florida and thence along Gulf coast to Texas (Bexar County).'

Sylvia troglodytes (not *Motacilla troglodytes* Linnaeus) WILSON, Am. Orn., i, 1808, 139, pl. 8, fig. 6.—BONAPARTE, Journ. Ac. Nat. Sci. Phila., iv, 1824, 187.

[*Anorthura*] *troglydytes* (not of Macgillivray) COUES, Key N. Am. Birds, 1872, 87. *A[northura]* *troglydytes* JORDAN, Man. Vertebr. E. U. S., 4th ed., 1884, 55.

Troglydytes hiemalis VIEILLLOT, Nouv. Dict. d'Hist. Nat., xxxiv, 1819, 514 (New York); Enc. Méth., ii, 1823, 470.—PEARBODY, Rep. Orn. Mass., 1839, 316.—STEJNEGER, Zeitschr. ges. Orn., i, 1884, 11 (monogr.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 722.—BREWSTER, Auk, iii, 1886, 176 (Black Mts., North Carolina, 5,000 to 6,000 ft. in summer); v, 1888, 389, 392 (Winchenden, Massachusetts, breeding).—SETON, Auk, iii, 1886, 327 (Manitoba, e. of Lake Winnipeg; summer resident).—ALLEN, Bull. Am. Mus. N. H., i, 1886, 260 (breeding at Lynn and on mountains of Berkshire Co., Massachusetts).—SENNETT, Auk, iv, 1887, 244 (Roan Mt., North Carolina, breeding in balsam belt).—BECKHAM, Proc. U. S. Nat. Mus., x, 1888, 691 (Leon Springs, Bexar Co., Texas, 1 spec., Mar. 12).—COOKE, Bird Migr. Miss. Val., 1888, 273 (breeding at Polo, Illinois, and in centr. Iowa).—EVERMANN, Auk, vi, 1889, 29 (Carroll Co., Indiana; "breeds").—FAXON, Auk, v, 1889, 105 (Saddleback Mt., Berkshire Co., Massachusetts, breeding above 2,000 ft.).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1890, 629 (e. Manitoba, summer resident).—RALPH and BAGG, Auk, vii, 1890, 232 (Oneida Co., New York, breeding).—MERRIAM (F. A.), Auk, vii, 1890, 407 (Lewis Co., New York, nesting in deciduous woods).—BREWSTER and CHAPMAN, Auk, viii, 1891, 137 (Suwanee R., Florida, 2 specimens).—PIERS, Trans. Nova Scotia Inst. Sci., ser. 2, i, 1892, 203–207 (nidification); Auk, xv, 1898, 196 (Halifax, Nova Scotia, descr. nest).—DWIGHT, Auk, ix, 1892, 140 (North Mt., Pennsylvania, breeding); x, 1893, 14 (Prince Edward I., breeding).—WHITE, Auk, x, 1893, 229 (Mackinac I., Michigan, breeding).—NEHRING, Our Native Birds, etc., i, 1893, 154.—WAYNE, Auk, xii, 1895, 365 (Wacissa R., n. w. Florida).—BAILY, Auk, xiii, 1896, 296 (Elk Co., Pennsylvania, breeding).—RIVES, Auk, xv, 1898, 137 (West Virginia, breeding in spruce belt).—DEARBORN, Prelim. List Birds, Belknap and Merrimac counties, New Hampshire, 1898, 33 (breeding).

T[troglydytes] hiemalis RIDGWAY, Man. N. Am. Birds, 1887, 555.

^a Nine specimens.

- Troglodytes hyemalis* SWAINSON and RICHARDSON, Fauna Bor.-Am., ii, 1831, 318.—BONAPARTE, Geog. and Comp. List, 1838, 11; Consp. Av., i, 1850, 222.—AUDUBON, Orn. Biog., iv, 1838, 430, pl. 360; Synopsis, 1839, 76; Birds Am., oct. ed., ii, 1841, 128, pl. 121.—NUTTALL, Man. Orn. U. S. and Can., 2d ed., i, 1840, 481.—MAXIMILIAN, Journ. für Orn., 1858, 109 (Pennsylvania, etc.).—WILLIS, Ann. Rep. Smithson. Inst. for 1858 (1859), 282 (Nova Scotia).—BAIRD, Cat. Am. Birds, 1859, no. 273, part; Review Am. Birds, 1864, 144.—SCLATER, Cat. Am. Birds, 1862, 23 (New York).—DRESSER, Ibis, 1865, 485 (San Antonio, Texas).—MCLILWRAITH, Proc. Essex Inst., v, 1866, 88 (Hamilton, Ontario).—TRIPPE, Am. Nat., vi, 1872, 47 (Catskill Mts., New York, breeding).—MAYNARD, Proc. Bost. Soc. N. H., xiv, 1871, 5 (habits); Birds Florida, 1873, 40.—SNOW, Birds Kansas, 1873, 6 (e. Kansas).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 9, fig. 9.—RIDGWAY, Orn. Illinois, i, 1889, 96.—GRUNDTVIG, Trans. Wisc. Ac. Sci., etc., x, 1894, 153 (Outagamie Co., Wisconsin, breeding).
- [*Troglodytes hyemalis*] var. *hyemalis* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 149.
- T[roglodytes] hyemalis* GRAY, Gen. Birds, i, 1847, 158.—TRIPPE, Proc. Essex Inst., ii, 1871, 115 (Iowa; "breeds").
- [*Troglodytes*] *hyemalis* GRAY, Hand-list, i, 1869, 189, no. 2566, part.
- Troglodytes (Anorthura) hyemalis* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 369, part.—ALLEN, Proc. Essex Inst., iv, 1864, 68.
- Anorthura hyemalis* COUES and PRENTISS, Ann. Rep. Smithson. Inst. for 1861 (1862), 410 (District of Columbia).—ALLEN, Bull. Mus. Comp. Zool., ii, 1871, 267 (e. Florida, rare in winter).—WIDMANN, Auk, xix, 1902, 237 (Wequetonsing, Michigan, breeding).
- Anorthura hiemalis* SHARPE, Cat. Birds Brit. Mus., vi, 1881, 275.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 125.—BEYER, Proc. Louis. Soc. Nat. for 1897-99 (1900), 42 (Louisiana, winter resident).—FAXON and HOFFMANN, Birds Berkshire Co., Massachusetts, 1900, 13 (Greylock Mt., etc., breeding).—EMBURY, Birds Madison Co., New York, 1901, 32 (resident).
- Anorthura troglodytes* var. *hyemalis* COUES, Key N. Am. Birds, 1872, 351, in text; Birds Northwest, 1874, 33, part.—BROWN (N. C.), Bull. Nutt. Orn. Club, iii, 1878, 178 (Coosada, Alabama, winter).—KING, Bull. Nutt. Orn. Club, iii, 1878, 195 (breeding near Ithaca, New York).—MEARNS, Bull. Nutt. Orn. Club, iv, 1879, 34 (Rhinebeck, etc., lower Hudson R., winter).
- Anorthura troglodytes* . . . var. *hyemalis* COUES, Check List, 1873, no. 50.
- Anorthura troglodytes hyemalis* COUES, Birds Col. Val., 1878, 176, part.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 65.—MERRIAM, Bull. Nutt. Orn. Club, vi, 1881, 227 (Lewis Co., New York, breeding); Auk, ii, 1885, 113 (Godbout, Quebec, summer resid., 1 pair).—PEARSALL, Bull. Nutt. Orn. Club, vi, 1881, 244 (Grand Manan, New Brunswick; habits; descr. nest and eggs).—LANGILLE, Our Birds, etc., 1884, 281 (habits).
- A[northura] troglodytes hyemalis* RIDGWAY, Bull. Ill. State Labr. Nat. Hist., no. 4, May, 1881, 173 (Illinois).
- Anorthura troglodytes hiemalis* COUES, Check List, 2d ed., 1882, no. 76.—BREWSTER, Bull. Nutt. Orn. Club, viii, 1883, 119 (breeding near Lynn, e. Massachusetts).—KNOWLTON, Bull. Nutt. Orn. Club, viii, 1883, 120 (breeding near Brandon, w. Vermont).
- A[northura] troglodytes hiemalis* COUES, Key N. Am. Birds, 2d ed., 1884, 278.
- [*Anorthura troglodytes* var. *hyemalis*] b. *hyemalis* COUES, Birds Northwest, 1874, 33, part (synonymy).
- Troglodytes parvulus*, var. *hyemalis* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 155.—BREWSTER, Bull. Nutt. Orn. Club, iii, 1878, 22 (descr. young).

T[roglodytes] parvulus . . . var. *hyemalis* RIDGWAY, Ann. Lyc. N. Y., 1, Jan. 1874, 367 (Illinois).

T[roglodytes] parvulus, var. *hyemalis* NELSON, Bull. Essex Inst., viii, 1874, 9 (n. e. Illinois, migrant; habits).

Troglodytes parvulus hyemalis GOODE, Bull. U. S. Nat. Mus., no. 20, 1883, 347.

Troglodytes europæus (not of Vieillot) BONAPARTE, Journ. Ac. Nat. Sci. Phila., iv, 1824, 188; Ann. Lyc. N. Y., ii, 1826, 93, 440.—NUTTALL, Man. Orn. U. S. and Can., i, 1832, 427.

Olbiorchilus hiemalis hiemalis OBERHOLSER, Auk, xix, April, 1902, 178.

Olbiorchilus hiemalis AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xix, 1902, 329.—PREBLE, North Am. Fauna, no. 22, 1902, 128 (Moose Factory).

OLBIORCHILUS HIEMALIS PACIFICUS (Baird).

WESTERN WINTER WREN.

Similar to *O. h. hiemalis*, but darker and more richly colored: brown of upper parts darker, more rusty, more uniform, the back etc., much less distinctly barred, often quite uniform; color of throat, chest, etc., much deeper and brighter, more tawny-cinnamon or light russet; bill straighter and more slender.

Adult male.—Length (skins), 88–97 (92); wing, 44–49.5 (46.5); tail, 28–33.5 (30.3); exposed culmen, 10–12.5 (11.6); tarsus, 17–19.5 (18); middle toe; 11.5–13.5 (12.8).^a

Adult female.—Length (skins), 85–99 (92); wing, 43.5–47.5 (45.4); tail, 28–31 (29.7); exposed culmen, 10–12.5 (11.6); tarsus, 17–18.5 (17.9); middle toe, 11.5–13.5 (12.5).

Western North America; breeding from southern Coast Range in California northward to southern Alaska (Prince of Wales Island; Mitkof Island; Yakutat; Juneau; Farragut Bay; Howkan), eastward along northern border of United States to Montana (Java; Columbia Falls); southward in winter to southern California (Fort Tejon; San Buenaventura), western Nevada (Truckee Valley), and Colorado!

Troglodytes europæus (not *Troglodytes europæus* Vieillot) ORNITHOLOGICAL COMMITTEE, Journ. Ac. Nat. Sci. Phila., vii, 1837, 193 (Columbia R.).

Troglodytes (Anorthura) hyemalis (not *T. hiemalis* Vieillot) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 369, part (Fort Steilacoom and Shoalwater Bay, Washington; Columbia R.).

Troglodytes hyemalis BAIRD, Cat. Am. Birds, 1859, no. 273, part.—XANTUS, Proc. Ac. Nat. Sci. Phila., xi, 1859, 191 (Fort Tejon, California).—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 191 (Coast Range and Fort Steilacoom, Washington).—BROWN, Ibis, 1868, 421 (Vancouver I.—DALL and BANNISTER, Trans. Chicago Acad. Sci., i, 1869, 290 (Sitka, Alaska).—COOPER, Orn. Cal., 1870, 73.

(?) *Troglodytes hiemalis* COOKE, Bull. 37, Col. State Agric. Coll., 1897, 121 (Colorado; resident, breeding at 8,000 ft.).

Troglodytes hiemalis SILLOWAY, Bull. Univ. Mont., No. 3, Biol. Ser., No. 1, 1901, 71 (Flathead Lake, etc., Montana, breeding).

(?) *Troglodytes (Anorthura) hyemalis* COUES, Proc. Ac. Nat. Sci. Phila., 1866, 73 *Anorthura troglodytes* var. *hyemalis* COUES, Key, 1872, 351, part; Birds Northwest 1874, 33, part.

^a Ten specimens.

- [*Anorthura troglodytes* var. *hyemalis*] *b. hyemalis* COUES, Birds Northwest, 1874, 33, part.
- Anorthura troglodytes hyemalis* COUES, Birds Col. Val., 1878, 176, part.
- (?) *Anorthura parvulus* . . . var. *hyemalis* RIDGWAY, Bull. Essex Inst., v, Nov., 1873, 180 (Colorado).
- Anorthura parvulus*, var. *hyemalis* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 155, part.
- Troglodytes parvulus*, var. *hyemalis* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, iii, 1874, 504 (San Buenaventura, California, winter).
- (?) *Anorthura hiemalis* COOKE, Bull. 56, Col. State Agric. Coll., 1900, 222 (Denver, Colorado, 1 spec., July 8).
- Troglodytes hyemalis*, var. *pacificus* BAIRD, Review Am. Birds, Sept., 1864, 145 (Simiahmoo, Washington; coll. U. S. Nat. Mus.).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 9, fig. 10.
- [*Troglodytes hyemalis*] var. *pacificus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 149.
- T*[*troglodytes*] *hyemalis pacificus* RIDGWAY, Bull. Essex Inst., vii, Jan., 1875, 12 (Carson City, Nevada, winter).—HENSHAW, Orn. Rep. Wheeler's Surv., 1879, 288 (Columbia R., both sides of Cascade range; habits).
- Troglodytes hyemalis pacificus* GOODE, Bull. U. S. Nat. Mus., no. 20, 1883, 347.
- Troglodytes hiemalis pacificus* STEJNEGER, Zeitschr. ges. Orn., i, 1884, 12, part (monogr.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 722a.—COOPER, Auk, iv, 1887, 93 (Ventura Co., California, winter).—MERRILL (J. C.), Auk, v, 1888, 362 (Fort Klamath, e. Oregon, fall and winter; head e. fork Des Chutes R., alt. 5,600 ft., July 6); Auk, xv, 1898, 19 (Fort Sherman, Idaho, resident).—FANNIN, Check List Birds Brit. Col., 1891, 43 (resident).—LAWRENCE (R. H.), Auk, xi, 1894, 181 (Wilsons Peak, s. California, Nov.).—GRINNELL (J.), Auk, xv, 1898, 130 (Sitka, Alaska, breeding); Pub. 2, Pasadena Ac. Sci., 1898, 48 (Los Angeles Co., California, Oct. to Jan.).—CHAPMAN, Bull. Am. Mus. N. H., iii, 1900, 152 (coast district, British Columbia).
- T*[*troglodytes*] *hiemalis pacificus* RIDGWAY, Man. N. Am. Birds, 1887, 555.
- Anorthura troglodytes pacificus* RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 170, 215; Nom. N. Am. Birds, 1881, no. 65a.—COUES, Check List, 2d ed., 1882, no. 77.
- A*[*northura*] *t*[*roglodytes*] *pacificus*? COUES, Key N. Am. Birds, 2d ed., 1884, 279.
- [*Troglodytes hyemalis*] β . *pacificus* RIDGWAY, Orn. 40th Parallel, 1877, 424 (lower Truckee Valley, Nevada, Dec.).
- Troglodytes hyemalis*, β . *pacificus* BELDING and RIDGWAY, Proc. U. S. Nat. Mus., i, 1879, 403 (Calaveras Co., California, Jan.).
- Anorthura pacifica* SHARPE, Cat. Birds Brit. Mus., vi, 1881, 274, pl. 16, fig. 1 (Vancouver I.).
- Anorthura hiemalis pacifica* RIDGWAY, Proc. U. S. Nat. Mus., vi, June 30, 1883, 94.—OBERHOLSER, Proc. U. S. Nat. Mus., xxi, 1898, 421.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 125.—BISHOP, North Am. Fauna, no. 10, 1900, 92 (Glacier, Alaska, June).—OSGOOD, North Am. Fauna, no. 21, 1901, 49 (Queen Charlotte Islands; habits).—BARLOW, Condor, iii, 1901, 182 (Sierra Nevada, breeding).—RATHBUN (S. F.), Auk, xix, 1902, 139 (Seattle, Washington, resident).
- Olbiorchilus hiemalis pacificus* OBERHOLSER, Auk, xix, Apr., 1902, 179.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xix, 1902, 329.—FISHER (W. K.), Condor, iv, 1902, 135 (Humboldt Bay and Crescent City, California).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 449.—KNIGHT, Bull. Univ. Wyom. Agric. Exp. Sta., No. 55, 1902, 153 (Freezeout Mts., Wyoming, breeding).

OLBIORCHILUS HIEMALIS HELLERI (Osgood).

KADIAC WREN.

Similar to *O. h. pacificus*, but decidedly larger, with feet smaller. tail relatively shorter, and coloration duller.

Adult male.—Length (skins), 99–104 (101); wing, 49–49.5 (49.2); tail, 30–33 (31.5); exposed culmen, 12.5–13 (12.7); tarsus, 16.5–17.5 (17); middle toe, 12–12.5 (12.2).^a

Kadiak Island, Alaska (resident).

Troglodytes alascensis (not of Baird) FINSCH, Abb. Nat. Ver. Brem., iii, 1872, 30 (Kadiak Island, Alaska).—TURNER, Contr. Nat. Hist. Alaska, 1896, 181, part (Kadiak).

Troglodytes hiemalis pacificus (not *Troglodytes hyemalis* var. *pacificus* Baird) STEJNEGER, Zeitschr. ges. Orn., i, 1884, 12 part (Kadiak).—NELSON, Rep. Nat. Hist. Coll. Alaska, 1887, 210, part (Kadiak).—RIDGWAY, Proc. U. S. Nat. Mus., xvi, 1893, 664 (Kadiak; descr. young).

Anorthura hiemalis helleri OSGOOD, Auk, xviii, Apr., 1901, 181 (English Bay, near Kadiak Island, Alaska; coll. U. S. Nat. Mus.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xviii, 1901, 307 (check list no. 722b).

Olbiorchilus hiemalis helleri OBERHOLSER, Auk, xix, Apr., 1902, 179.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xix, 1902, 329.

OLBIORCHILUS ALASCENSIS (Baird).

UNALASKA WREN.

Similar to *O. h. helleri*, but much larger, with relatively longer bill and coloration paler.

Adults (sexes alike).—Above plain tawny-brown (between dark broccoli brown and russet), duller on pileum, more rufescent on rump and upper tail-coverts, the latter sometimes narrowly and indistinctly barred with dusky;^b feathers of rump with concealed spots or streaks of white, their basal portion slate color; tail clear russet-brown, rather broadly barred with dusky; wings russet-brown barred with dusky, the outermost primaries with the dusky bars broader and the interspaces whitish; tertials margined terminally with pale rusty brown or cinnamon; tip of middle coverts (sometimes of greater coverts also) with a small spot of white; a narrow and rather indistinct superciliary stripe of pale cinnamon-buff; a rather broad, more or less well defined, post-ocular stripe of brown, occupying upper part of auricular region; suborbital region and lower portion of auricular region cinnamon-buff, streaked (more or less distinctly) with brown; malar region, chin, throat, chest, breast, and upper abdomen buffy cinnamon or cinnamon-buff; lower abdomen similar, but paler and more or less speckled and barred with dusky; sides and flanks deeper cinnamon or light cinnamon-brown, barred with dusky and whitish (the latter sometimes in

^a Two specimens. Two others, with sex undetermined, measure as follows: Wing 45.5–47; tail, 30; exposed culmen, 12–12.5; tarsus, 17.5; middle toe, 12.5–13.

^b Very rarely there are traces of darker bars on the rump also.

form of spots rather than bars); under tail-coverts clear rusty brown or russet barred with black and tipped with white or with sagittate subterminal marks of white; maxilla blackish or dusky brown with paler tomia; mandible lighter brown; iris brown; legs and feet brownish.

Young.—Essentially like adults, but brown of upper parts more rufescent, flanks and under tail-coverts less distinctly barred (bars sometimes obsolete), and feathers of under parts more or less distinctly margined with brown or dusky.

Adult male.—Length (skins), 102–114 (110); wing, 50–54 (51.7); tail, 33–35 (34.1); exposed culmen, 13–15 (14); tarsus, 17–21 (19.5); middle toe, 13–15 (14.2).^a

Adult female.—Length (skins), 99–113 (106); wing, 48.5–51.5 (50); tail, 31.5–33 (32.5); exposed culmen, 13–15 (14.2); tarsus, 18.5–20 (19.2); middle toe, 12.5–15 (13.7).^b

St. George Island, Prybilof group, easternmost Aleutian islands (Unalaska; Akutan;^c Unga;^c Amaknak^c), and part of Alaska peninsula (Belkofski^c).

Troglodytes alasensis BAIRD, Trans. Chicago Ac. Sci., i, 1869, 315, pl. 30, fig. 3 (St. George Island, Prybilof group, Alaska; coll. U. S. Nat. Mus.).—DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 280 (St. George I.).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 9, fig. 8.—STEJNEGER, Zeitschr. ges. Orn., i, 1884, 11, part (monogr.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 723, part.—TURNER, Contr. Nat. Hist. Alaska, 1886, 181, part, pl. 9, upper fig. (Unalaska; Unga I.; Alaska peninsula at Belkofski).—NELSON, Rep. Nat. Hist. Coll. Alaska, 1887, 210 (St. George I.; Akutan; Unalaska; habits).—RIDGWAY, Proc. U. S. Nat. Mus., xvi, 1893, 665 (Unalaska).

[*Troglodytes*] *alasensis* RIDGWAY, Man. N. Am. Birds, 1887, 555, part.

[*Anorthura*] *alasensis* COUES, Key N. Am. Birds, 1872, 87.

Anorthura alasensis COUES, Birds Col. Val., 1878, 178, in text.—RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880, 170, 215, part; Nom. N. Am. Birds, 1881, no. 66, part.—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 273 (Amaknak I., near Una-

^a Nine specimens.

^b Six specimens.

Specimens from St. George Island compare in measurements with those from Unalaska as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
One adult male from St. George Island	54	35	14	20	14
Eight adult males from Unalaska Island	51.4	34.1	14	19.1	14.2
FEMALES.					
One adult female from St. George Island	51.5	33	15	20	13.5
Five adult females from Unalaska Island	49.7	32.6	14.1	19.1	13.8

^cSpecimens from these localities not seen by me.

- laska; excl. syn. part).—BEAN, Proc. U. S. Nat. Mus., v, 1882, 146 (Iliadik and Chernofski, Unalaska).—NELSON, Cruise of "Corwin" in 1881 (1883, 61 (St. George I.; Unalaska; habits).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 125, part.—PALMER (W.), Avifauna Pribilof Is., 1899, 421 (St. George I.; habits; descr. nest and eggs).
- Anorthura troglodytes* var. *alascensis* COUES, in Elliott's Affairs in Alaska, 1873, 173.
- Anorthura troglodytes* . . . var. *alascensis* COUES, Check List, 1873, no. 50a.
- [*Anorthura troglodytes* var. *hyemalis*] c. *alascensis* COUES, Birds Northwest, 1874, 33, part (synonymy).
- A[northura] t[roglodytes] *alascensis* COUES, Key N. Am. Birds, 2d ed., 1894, 279, part.
- Troglodytes hyemalis* var. *alascensis* DALL, Proc. Calif. Ac. Sci., v, Apr., 1873, 24 (Amaknak I.; Unalaska I.; habits); v, 1874, 273, part (Prybilof Islands).
- [*Troglodytes hyemalis*] var. *alascensis* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 149.
- Troglodytes parvulus*, var. *alascensis* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 157, part.—ALLEN, Bull. Nutt. Orn. Club, ii, 1877, 82 (St. George I.; descr. nest and eggs).
- Troglodytes parvulus alascensis* GOODE, Bull. U. S. Nat. Mus., no. 20, 1883, 347.
- Obiorchilus alascensis* OBERHOLSER, Auk, xix, Apr., 1902, 178.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xix, 1902, 330.

OLBIORCHILUS MELIGERUS Oberholser.

ATTU WREN.

Similar to *O. alascensis*, but larger, and coloration much duller: brown of upper parts much duller and grayer, the pileum grayish sepia or dark hair brown, the rump, lower back, and posterior scapulars indistinctly barred with dusky; color of throat, chest, etc., pale isabella color, and posterior under parts more heavily barred and speckled with dusky, the markings darker than in *O. alascensis*.

Adult male.—Length (skins), 112–118 (115); wing, 53–55 (54); tail, 31–35 (34); exposed culmen, 15; tarsus, 20; middle toe, 15.^a

Adult female.—Length (skin), 113; wing, 51; tail, 32; exposed culmen, 15; tarsus, 20; middle toe, 15.^b

Islands of Attu, Amchitka, Atka, and Kiska, western end of Aleutian chain.

Troglodytes hyemalis var. *alascensis* (not *Troglodytes alascensis* Baird) DALL, Proc. Calif. Ac. Sci., v, 1874, 273, part (Attu and Amchitka islands, western Aleutians).

Troglodytes parvulus, var. *alascensis* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 157, part.

Troglodytes alascensis STEJNEGER, Zeitschr. ges. Orn., i, 1884, 11, part.—TURNER, Auk, ii, 1885, 157 (Nearer Islands, Aleutian chain, resident).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 723, part.

T[roglodytes] *alascensis* RIDGWAY, Man. N. Am. Birds, 1887, 555, part.

Anorthura alascensis RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880, 170, 215, part; Nom. N. Am. Birds, 1881, no. 66, part.—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 273, part (in synonymy).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 125, part.

^a Four specimens.

^b One specimen.

[*Anorthuru troglodytes* var. *hyemalis*] c. *alascensis* COUES, Birds Northwest, 1874, 33, part (in synonymy).

A[northura] t[roglodytes] alascensis COUES, Key N. Am. Birds, 2d ed., 1884, 279, part.

Anorthura meligera OBERHOLSER, Auk, xvii, Jan., 1900, 25 (Attu I., western Aleutians; coll. U. S. Nat. Mus.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xviii, 1901, 307 (check list no. 723.1).

Olbiorchilus meligerus OBERHOLSER, Auk, xix, Apr., 1902, 178.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xix, 1902, 330.

Genus THRYORCHILUS Oberholser.

Thryorchilus a OBERHOLSER, Proc. U. S. Nat. Mus., xxvii, no. 1354, Jan. 23, 1904, 198. (Type, *Troglodytes browni* Bangs.)

Small, very short-tailed, long-legged Troglodytidae, resembling *Henicorhina* and *Nannorchilus*, but with only 10 instead of 12 rectrices, and with the nostril narrowly ovate, longitudinal, and distinctly operculate, as in *Troglodytes*.

Bill shorter than head, its depth at frontal antiae a little less than one-fourth the exposed culmen, the latter decidedly shorter than middle toe without claw; culmen straight for basal half or more, then gradually decurved to tip; gonys straight, its base forming a slight but distinct angle; maxillary tomium faintly concave, without trace of subterminal notch; nostril narrowly ovate or pyriform (its narrow end anteriorly), longitudinal, overhung by a conspicuous excurrent operculum. Rictal bristles obsolete. Wing moderate in length, much rounded; seventh, sixth, and fifth, or sixth, fifth, and fourth primaries longest, the ninth much shorter than secondaries, the tenth (outermost) decidedly more than half as long as ninth. Tail about two-thirds as long as wing, decidedly rounded, apparently consisting of only ten rectrices. Legs and feet stout, the tarsus nearly half as long as wing; middle toe, with claw, decidedly shorter than tarsus; outer toe longer than inner, reaching (without claw) to middle of subterminal phalanx of middle toe, the inner (without claw) reaching considerably beyond penultimate joint of middle toe; hallux as long as inner toe, or slightly longer, much stouter.

Coloration.—Above tawny-brown, the remiges and rectrices barred with dusky, the primaries conspicuously edged with white; superciliary stripe and under parts grayish white or pale gray, the flanks and under tail-coverts light tawny-brown; sides of neck streaked with brown and whitish.

Range.—High mountains of Chiriqui (Volcan de Chiriqui, 10,000 to 10,500 feet). (Monotypic.)

a "Θρύον, juncus; ὄρχιλος, regulus."

THRYORCHILUS BROWNI (Bangs).

BROWN'S WREN.

Adults (sexes alike).—Above plain mummy brown,^a slightly duller on pileum, the rump approaching chestnut-brown; tail and secondary-dusky, rather broadly barred with light brown (usually deeper brown on tertials); primaries dusky, about six or seven of the outermost irregularly edged with white;^b alulae also edged with white, and primary coverts narrowly tipped with white; a broad white superciliary stripe, extending to sides of nape; a broad postocular stripe, confluent with brown of hindneck; lores white, or grayish white, faintly mottled with gray; lower half (approximately) of auricular region and malar region grayish white, the feathers sometimes very faintly edged or margined with brown or dusky; sides of neck grayish white, the feathers edged with dusky brown, producing short and indistinct streaks; chin, throat, chest, breast, and abdomen dull white (the feathers with concealed bases blackish slate), the sides of lower throat and chest sometimes minutely flecked with brown; flanks and under tail-coverts light tawny-olive or russet; maxilla black with paler tomia; mandible pale basally, dusky terminally;^c legs and feet horn color.

Young.—Similar to adults, but feathers of chest, breast, and upper abdomen distinctly margined with sooty brown, producing a squamate effect, those of the throat streaked or flecked with sooty; white superciliary stripe narrower, less purely white; white edgings to primaries broader, more conspicuous.^d

Adult male.—Length (skins), 98–107 (100.7); wing, 45–51.5 (48.8); tail, 28–35.5 (31.1); exposed culmen, 13–14.5 (13.7); tarsus, 22.5–24.5 (23.5); middle toe, 14–15 (14.5).^e

Adult female.—Length (skin), 100.5; wing, 48; tail, 31.5; exposed culmen, 13.5; tarsus, 22.5; middle toe, 14.^f

Volcan de Chiriqui, Isthmus of Panama, at 10,000 to 10,500 feet altitude.

Troglodytes browni BANGS, Proc. New Engl. Zool. Club, iii, Jan. 30, 1902, 53 (Volcan de Chiriqui, Colombia, alt. 10,000 ft.; coll. E. A. and O. Bangs.)

Thryorchilus browni OBERHOLSER, Proc. U. S. Nat. Mus., xxvii, no. 1354, Jan. 21, 1904, 198 (crit.).

^a The color much duller (nearly sepia or bistre, more sooty on pileum) in worn plumage.

^b This white edging to the primaries is a very striking feature in this singular species, and a certain means of identification.

^c The relative extent of the light and dark areas on the mandible varies greatly.

^d These broad white edgings are occasionally broken by dusky spots, throwing the white into the form of very broad bands or transverse spots.

^e Six specimens.

^f One specimen.

Genus HENICORHINA Sclater and Salvin.

Heterorhina (not of Westwood, 1845) BAIRD, Review Am. Birds, Aug., 1864, 94, 115. (Type, *Scytalopus prosthaleuca* Sclater.)

Henicorhina SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1868, 170 (substitute for *Heterorhina* Baird, preoccupied).

Very small Troglodytidae (wing 49–60 mm.) most resembling *Nannorchilus*, but with tail only half as long as wing, nostril opening through middle of nasal fossa, and coloration very different (sides of neck streaked with black and white).

Bill shorter than head, nearly straight, moderately compressed anterior to nostrils, its depth at latero-frontal antiae equal to or slightly less than its width at same point, and equal to one-third the distance from nostril to tip of maxilla, or less; exposed culmen longer than middle toe without claw, very much shorter than tarsus, very faintly if at all curved until near tip, where gradually decurved; gonys much shorter than distance from nostril to tip of maxilla; maxillary tomium straight or very faintly concave, distinctly notched subterminally; rictus slightly deflexed. Nostril longitudinal, fusiform or elliptical, surrounded by membrane except in front. Rictal bristles obvious, two or three of them quite distinct. Wing short, much rounded, very concave beneath; seventh and sixth, or seventh, sixth, and fifth primaries longest; eighth intermediate between first and second; ninth very much shorter than secondaries, much less than twice as long as tenth. Tail very short, about half as long as wing, much rounded, the rectrices broadly rounded at tip. Tarsus very long (about half as long as wing), the acrotarsium distinctly scutellate, the planta tarsi booted; middle toe with claw much shorter than tarsus; outer toe (without claw) reaching to considerably beyond subterminal joint of middle toe, its claw not reaching to base of middle claw; inner toe slightly shorter than outer; hallux (without claw) as long as outer toe (without claw), but much thicker, its claw decidedly shorter than the digit; basal phalanx of middle toe adherent to outer toe for greater part of its length, to inner toe for more than half its length.

Coloration.—Above brown, the wings and tail barred with black; pileum and hindneck (at least laterally) black; sides of head and neck black streaked with white, these streaks very conspicuous on sides of neck; under parts white, becoming gray on sides and brown on flanks, or else almost wholly gray. Young not essentially different from adults.

Nidification.—Nest (of *H. prosthaleuca*) “formed of mosses interwoven with great skill . . . lined with red feathers from the abdomen of *Trogon mexicanus* . . . suspended or rather fastened to the branches of shrubs, and so skillfully done . . . as to be readily mistaken for a bunch of moss.”^a

Range.—Southern Mexico to Peru, Bolivia, and Guiana.

^a Sumichrast, Mem. Bost. Soc. N. H., i, 1869, 545.

KEY TO THE SPECIES AND SUBSPECIES OF HENICORHINA.

a. Breast, white.

- b. Pileum and hindneck uniform deep black; malar region unstreaked white; black submalar streak. (Guiana, Venezuela, and upper Amazon basin.)

Henicorhina leucosticta (extralimital)

- bb. Pileum and hindneck brown or sooty grayish medially (more or less broadly); malar region streaked with black; a black submalar streak.

- c. Remiges distinctly barred with black; white of under parts purer; white superciliary stripe broader. (*Henicorhina prosthleuca*.)^b

- d. Median portion of pileum and hindneck grayish brown or sooty grayish; brown of back, etc., duller; flanks duller brown (mummy brown or somewhat olivaceous); feet smaller (tarsus averaging 22.2 in male, 21.5 in female; middle toe 14.7 in male, 13.9 in female). (Southern Mexico to eastern Nicaragua.).....*Henicorhina prosthleuca prosthleuca* (p. 610)

- dd. Median portion of pileum and hindneck more decidedly brown (sometimes almost chestnut); back, etc., chestnut-brown or chestnut; flanks brighter brown (bright russet); feet larger (tarsus averaging 23.5 in male, 21.8 in female; middle toe averaging 16 in male, 14.8 in female). (Costa Rica to line of Panama Railway.)

Henicorhina prosthleuca pittieri (p. 612)

- cc. Remiges without distinct, if any, black bars; white of under parts duller; white superciliary stripe narrower. (Northern Ecuador.)

Henicorhina inornata (extralimital)

aa. Breast gray (more or less deep).

- b. Breast deep ash gray or nearly slate-gray. (*Henicorhina leucophrys*.)

- c. Coloration darker, the pileum broadly black laterally, sometimes wholly black (usually black with median portion more or less brownish); back, etc., chestnut-brown or chestnut; flanks deep russet or chestnut.

- d. Pileum black, slightly if at all brownish medially; black postocular stripe broader, anteriorly extending beneath eye to lores. (Peru.)

Henicorhina leucophrys leucophrys (extralimital)

^a *Cyphorhinus leucostictus* Cabanis, Wiegmann's Archiv. für Naturg., xiii, pt. i, 1847, 206, part (description from Guiana specimen; ex *Troglodytes leucostictus* Lichtenstein, manuscript, in Berlin Mus.).—*Heterorhina leucosticta* Baird, Review Am. Birds, Aug., 1864, 117, part (Rio Napo, e. Ecuador).—*Henicorhina leucosticta* Salvin and Godman, Biol. Centr.-Am., Aves, 1880, 79, part (Guiana; Venezuela; Ecuador; Colombia?); Sharpe, Cat. Birds Brit. Mus., vi, 1881, 287 (Bartica Grove, British Guiana; Ecuador).

^b *H. prosthleuca* may possibly intergrade with *H. leucosticta*, but I have not seen any evidence that such is the case. The Panama example referred to the latter by Professor Baird (Review Am. Birds, p. 177), now before me, certainly does not show any inclination toward the characters of that form.

^c *Henicorhina inornata* Hellmayr, Journ. für Orn., Oct., 1903, 528 (Lita, n. w. Ecuador; coll. Zool. Mus. Monaco).

^d *Tr[oglodites] leucophrys* Tschudi, in Wiegmann's Archiv. für Naturg., x, pt. i, 1844, 282 (Peru); *Troglodytes leucophrys* Tschudi, Fauna Peruana, Aves, 1847-49, 185.—*Cyphorhinus leucophrys* Cabanis, in Wiegmann's Archiv. für Naturg., 1847, pt. i, 206.—*Heterorhina leucophrys* Baird, Review Am. Birds, Aug., 1864, 118, part (in synonymy).—*Henicorhina leucophrys* Salvin and Godman, Biol. Centr.-Am., Aves, i, 1880, 80, part (in synonymy and locality Peru only); Sharpe, Cat. Birds Brit. Mus., vi, 1881, 288, part (in synonymy).—*H[enicorhina] leucophrys leucophrys* Hellmayr, Journ. für Orn., Oct., 1903, 531.

ddl. Pileum more or less distinctly brown medially, or else throat distinctly streaked with black; black postocular stripe broader, not extended anteriorly beneath eye.

e. Back, etc., lighter chestnut-brown or rufous-brown; flanks deep russet, throat (usually) more distinctly streaked; bill larger (exposed culmen 14.5-16.5). (Costa Rica and Chiriqui.)

Henicorhina leucophrys collina (p. 613)

ee. Back, etc., dark chestnut; flanks chestnut; throat indistinctly streaked; bill smaller (exposed culmen 13.5). (Eastern Guatemala.)

Henicorhina leucophrys castanea (p. 615)

ee. Coloration paler, the pileum brown with narrow black lateral margin; back, etc., tawny-brown, russet, or rusty brown; flanks tawny-brown or light russet.

d. Pileum dark sooty brown or sooty grayish broadly margined laterally with black.

e. Pileum sooty brown; back brighter rusty brown; flanks brighter tawny-brown or russet. (Western Ecuador.)

Henicorhina leucophrys berlepschi (extralimital)^a

ee. Pileum sooty grayish; back duller, more olive, brown; flanks duller tawny-brown or tawny-olive. (Western Guatemala and Chiapas.)

Henicorhina leucophrys capitalis (p. 615)

ddl. Pileum lighter brown (nearly concolor with back), very narrowly if at all margined laterally with black.

e. Pileum, hindneck, and upper back tawny-brown or mummy brown. (Southeastern Mexico.) *Henicorhina leucophrys mexicana* (p. 616)

ee. Pileum, hindneck, and upper back grayish brown. (Southwestern Mexico.) *Henicorhina leucophrys festiva* (p. 616)

bb. Breast very pale gray (almost grayish white). (*Henicorhina hilaris*.)

c. Lighter and more tawny brown above, the pileum and hindneck more olive brown; tail lighter brown, more broadly and regularly barred with dusky; bill smaller (exposed culmen 12.5-14).

d. Smaller, except bill (wing 53.5, tail 28, tarsus 23); chest paler gray, throat tinged with buff, and abdomen more extensively suffused with buff. (western Ecuador.) *Henicorhina hilaris hilaris* (extralimital)^b

dd. Larger, except bill (wing 56, tail 30, tarsus 25.5); ^c chest deeper gray, throat without buff tinge, and abdomen less extensively suffused with buff. (High mountains of Santa Marta, Colombia, 11,000 to 12,000 feet altitude.) *Henicorhina hilaris anachoreta* (extralimital)^d

^a*Henicorhina leucophrys* (not *Troglodytes leucophrys* Tschudi) Berlepsch and Taczanowski, Proc. Zool. Soc. Lond., 1883, 539 (Chimbo, w. Ecuador; crit.).—*Henicorhina hilaris*, part, Berlepsch and Taczanowski, Proc. Zool. Soc. Lond., 1884, 284, part (specimen from Pedregal, w. Ecuador).—*Henicorhina leucophrys berlepschi* Ridgway, Proc. Biol. Soc. Wash., xvi, Nov. 30, 1903, 168 (Chimbo, w. Ecuador; coll. Am. Mus. Nat. Hist.).

^b*Henicorhina hilaris* Berlepsch and Taczanowski, Proc. Zool. Soc. Lond., 1884, 284 (Cayandeled and Chaguarapata, w. Ecuador). A cotype of this form, received from Count von Berlepsch, is in the National Museum collection.

^cThe measurements given of *H. h. hilaris* and *H. h. anachoreta* are of a single adult male of each.

^d*Henicorhina anachoreta* Bangs, Proc. New Engl. Zool. Club, i, Dec. 27, 1899, 84 (Paramo de Chiruqua, Sierra Nevada de Santa Marta, Colombia, 12,000 ft. alt.; coll. E. A. and O. Bangs).

cc. Darker and duller brown above, the pileum and hindneck sooty brown; darker brown, more narrowly and less regularly barred with dusky; larger (exposed culmen 14-16). (Mountains of Santa Marta, Colombia, 3,000 to 8,000 feet altitude.).....*Henicorhina hilaris bangsi* (extralimital)

HENICORHINA PROSTHELEUCA PROSTHELEUCA (Sclater).

SCLATER'S WOOD WREN.

Adults (sexes alike).—Pileum dull brown or grayish brown, becoming black laterally, the brown-tipped feathers black beneath exposed portion; back and scapulars uniform chestnut-brown, becoming bright chestnut on rump and upper tail-coverts; tail broadly barred with black and light chestnut or russet, the black bars usually the wider; remiges broadly barred with black and chestnut-brown or russet, the bars of nearly equal width on secondaries, the black bars broader on primaries, where the interspaces are paler and grayer brown; greater coverts blackish, with outer webs broadly edged with brownish (varying from chestnut-brown to brownish gray), and often tipped with a small spot of white; middle coverts blackish, brownish, or grayish, also often with a small white spot at tip; lesser coverts brown or gray, with concealed portion dusky; a conspicuous narrow white superciliary stripe, somewhat broken by black edgings to the feathers; lores dusky; a broad postocular stripe of black, involving the upper half (approximately) of auricular region; suborbital region and lower portion of auricular region streaked with black and white in varying relative amount; sides of neck black, with conspicuous guttate streaks of white; malar region white, the feathers usually narrowly margined with black; a more or less distinct narrow submalar streak of black; chin, throat, chest, and median portion of breast and abdomen white; sides of chest and breast gray; flanks russet or russet-brown; under tail-coverts light russet or cinnamon, with paler (sometimes whitish) tip, sometimes marked with a small subterminal spot of dusky; axillars and under wing-coverts grayish white or pale gray; bill black, the mandible sometimes more brownish; iris brown;^b legs and feet brown or dusky in dried skins, dark plumbeous in life.^b

^a*Henicorhina leucophrys* (not *Troglodytes leucophrys* Tschudi) Bangs, Proc. Biol. Soc. Wash., xii, 1898, 160, 181 (Pueblo Viejo, San Francisco, Palomina, and San Miguel, Province of Santa Marta, Colombia); Proc. New Engl. Zool. Club, i, 1899, 83, 84 (crit.; descr.); Allen, Bull. Am. Mus. N. H., xiii, 1900, 180 (Valparaiso and El Libano, Santa Marta, Colombia).—*Henicorhina hilaris bangsi* Ridgway, Proc. Biol. Soc. Wash., xvi, Nov. 30, 1903, 168 (San Sebastian, Santa Marta, Colombia; coll. U. S. Nat. Mus.).

It is possible that *Troglodytes guttatus* Hartlaub (Syst. Verz. d. Ges. Mus. Bremen, 1844, 28), said to be from Colombia, may be this form, but I have not been able to consult the description. If it should prove to be the same, then, of course, the three forms would require to be called *H. guttata guttata* (for *H. h. bangsi*), *H. guttata anachoreta*, and *H. guttata hilaris*, respectively.

^bSumichrast, manuscript on label.

Adult male.—Length (skins), 91–107 (103), wing, 51–58 (54.7); tail, 22.5–30.5 (27.7); exposed culmen, 14.5–16.5 (15.5); tarsus, 20–23.5 (22.2); middle toe, 13.5–15.5 (14.7).^a

Adult female.—Length (skins), 90–104 (95); wing, 49.5–54 (51.2); tail, 21.5–27.5 (24.2); exposed culmen, 14–16 (14.5); tarsus, 19–24 (21.5); middle toe, 12.5–14.5 (13.9).^b

Southeastern Mexico, in States of Vera Cruz (Papantla; Cordova; Orizaba; Mirador; Buena Vista; San Andres Tuxtla; Motzorongo; Papantla), Puebla (Teziutlan; Metlatoyuca), Oaxaca (Llano Verde; Playa Vicente; Guichicovi; Santo Domingo), Tabasco (Teapa) and Campeche (Apazote), and southward through Guatemala and Honduras to eastern Nicaragua (Los Sábalos).

Scytalopus prosthleucus SCLATER, Proc. Zool. Soc. Lond., 1856 (pub. Jan. 26, 1857), 290 (Cordova, Vera Cruz; coll. A. Sallé).

Cyphorhinus prosthleucus SCLATER, Proc. Zool. Soc. Lond., 1858, 64, 96 (s. Mexico); 1859, 363, 372 (Oaxaca); Cat. Am. Birds, 1862, 20 (Cordova; Choctum, Guatemala).—SALVIN and SCLATER, Ibis, 1860, 272 (Volcan de Agua, Guatemala), 397 (Choctum).

Heterorhina prosthleuca BAIRD, Review Am. Birds, Aug., 1864, 116 (Choctum; Mirador, Vera Cruz).—SUMICHRIST, Mem. Bost. Soc. N. H., i, 1869, 545, part (hot and temperate zones, Vera Cruz).

Henicorhina prosthleuca SHARPE, Cat. Birds Brit. Mus., vi, 1881, 286, part (Cordova; Choctum).—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 482 (Rio Escondido, Nicaragua; habits).

[*Henicorhina*] *leucosticta* (not *Cyphorhinus leucostictus* Cabanis) SCLATER and SALVIN, Nom. Av. Neotr., 1873, 6, part.

^a Nineteen specimens.

^b Twelve specimens.

Specimens from different geographic areas compare in average measurements as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Ten adult males from Vera Cruz, Puebla, and Oaxaca.....	53.8	25.8	15.5	22.7	14.6
Three adult males from Tabasco (2) and Campeche (1)	54.7	26.8	16	21.2	14.7
Five adult males from Chiapas	56.2	25.6	15.2	21.7	15
One adult male from Honduras (Yaruca).....	55	28.5	15.5	22	13.6
FEMALES.					
Eight adult females from Vera Cruz and Puebla.....	51	24.7	14.3	21.6	13.7
Three adult females from Tabasco	51.7	22.7	14.5	21.2	14.3
One adult female from Honduras (Yaruca).....	50.5	.....	14.5	22.5	13.5

Chiapas specimens are quite identical with those from Vera Cruz, Puebla, and Oaxaca; Guatemalan examples (of which none of the nine specimens examined are sexed) are somewhat brighter colored above, the back more chestnut (but less so than in Costa Rican examples, *H. p. pittieri*), though the pileum is grayish brown, as in Mexican specimens.

Henicorhina leucosticta BOUCARD, Cat. Ois. Guat., 1878, 29.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1879, 79, part (Mexican and Guatemalan references and localities).—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 136 (Teziutlan, Puebla).

Cyphorhinus leucostictus LAWRENCE, Bull. U. S. Nat. Mus., no. 4, 1876, 13 (Guichicovi, Oaxaca).

HENICORHINA PROSTHELEUCA PITTIERI (Cherrie).

PITTIER'S WOOD WREN.

Similar to *H. p. prosthaleuca*, but coloration darker and brighter, the back more chestnut, rump bright chestnut, pileum browner (sometimes chestnut-brown), flanks bright brown (deep russet), and lower abdomen and anal region more decidedly tawny; feet larger (at least relatively).

Adult male.—Length (skins), 88–100 (98); wing, 51–60 (56.5); tail, 24–28 (26.1); exposed culmen, 14–16 (14.8); tarsus, 22.5–24 (23.5); middle toe, 14–17 (16).^a

Adult female.—Length (skins), 95–105 (101); wing, 52–53.5 (52.8); tail, 23.5–25.5 (24.2); exposed culmen, 14–16 (14.8); tarsus, 21.5–22 (21.8); middle toe, 14.5–15 (14.8).^b

Costa Rica (Angostura; Turrialba; Tucurrique; Térraba; Jiménez; Boruca; Siguerres; San José; San Carlos; Orosi; Val; Talamanca) to Isthmus of Panama (Panama; Loma de Leon).

Cyphorhinus prosthaleucus (not *Scytalopus prosthaleucus* Sclater) LAWRENCE, Ann. Lyc. N. Y., vii, 1861, 320 (Isthmus Panama).

Henicorhina prosthaleuca SHARPE, Cat. Birds Brit. Mus., vi, 1881, 286, part (Costa Rica; Veragua).—CHERRIE, Proc. U. S. Nat. Mus., xiv, 1891, 518 (Costa Rica; crit.).—BANGS, Proc. New Engl. Zool. Club, iii, 1902, 55 (Volcan de Chiriqui, 5,700 ft.).

^aSix specimens.

^bThree specimens.

Specimens from the Isthmus of Panama are smaller than those from Costa Rica, their average measurements comparing as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Six adult males from Costa Rica	56.5	26.1	15.4	23.5	16
Two adult males from Isthmus of Panama	52.7	25	15	23	15

I can discern no difference in coloration. The Costa Rican series includes one (from Térraba) labeled, in Mr. Cherrie's handwriting, "*Henicorhina pittieri* Cherrie;" this differs from three specimens (all belonging to the Field Columbian Museum) labeled by Mr. Cherrie as *H. prosthaleuca* only in larger size and somewhat lighter or more rufous hue of the color of the back, etc. A male from Talamanca in the National Museum collection is quite as large (in some measurements even larger), while another from the same locality is decidedly smaller. Therefore it would seem that there is much individual variation in size.

Cyphorhinus leucostictus (not *Cyphorhinus leucostictus* (Cabanis) LAWRENCE, Ann. Lyc. N. Y., vii, 1861, 320 (Isthmus Panama); ix. 1868, 92 (Angostura and Turrialba, Costa Rica).

Microcerculus leucostictus SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 345 (Panama).

Thryothorus leucostictus SALVIN, Proc. Zool. Soc. Lond., 1867, 134 (Santa Fé, Veragua).

Heterorhina leucosticta BAIRD, Review Am. Birds, 1864, 116, part (Panama).

Henicorhina leucosticta SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1868, 166 (Veragua).—SALVIN, Proc. Zool. Soc. Lond., 1870, 181 (Boquete de Chitira and Cordillera del Chucu, Veragua).—BOUCARD, Proc. Zool. Soc. Lond., 1878, 51 (San Carlos and Orosi, Costa Rica).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1879, 79, part.—ZELEDON, Cat. Aves de Costa Rica, 1882, 3; Proc. U. S. Nat. Mus., viii, 1885, 105; Anal. Mus. Nac. Costa Rica, i, 1887, 105 (Jiménez and Angostura, Costa Rica).

[*Henicorhina*] *leucosticta* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 6, part.

Henicorhina pitleri CHERRIE, Exploracion Zoologica Costa Rica, i, Aves, 1893, 8 (Boruca and Terraba, s. w. Costa Rica; coll. Costa Rica Nat. Mus.).

HENICORHINA LEUCOPHRYS COLLINA (Bangs).

CHIRIQUI WOOD WREN.

Adult male.—Pileum and hindneck sooty black, the feathers (except those of lateral portions) usually^a more or less distinctly tipped with sooty brown or sooty grayish, these brownish or sooty grayish tips sometimes so broad as to conceal the underlying black, thus giving the median portion of the pileum (broadly) a uniform sooty gray or brownish color; back, scapulars, rump, and upper tail-coverts plain dark rufous-brown or chestnut-brown (between deep mummy brown and burnt-umber); tail duller brown, more or less distinctly barred with black; wings similar in color to back, etc., narrowly and rather indistinctly barred with black; a narrow superciliary stripe of broad white streaks; a broad postocular stripe of black, involving upper portion of auricular region; sides of head below eye and black postocular stripe broadly streaked with black and white, in nearly equal amount (the black sometimes predominating); sides of neck black, broadly streaked with white; chin and throat white, streaked with black or blackish slate; chest and breast plain slate-gray, the lower portion of the latter sometimes showing paler tips to feathers; abdomen very pale gray or grayish white, the feathers tipped with pale tawny, buffy, or whitish, and more or less distinctly barred with slate-gray;^b flanks,

^a In a specimen (National Museum collection, no. 119898, adult female) from El Achioté, Costa Rica, in fresh plumage, the pileum is entirely black without trace of brown or sooty tips to the feathers.

^b In the specimen from El Achioté, Costa Rica, previously referred to, not only the abdomen, but the median portion of the breast also is very distinctly, but irregularly barred with black. This specimen, although a female, is decidedly larger than the males from Costa Rica (one from Jiménez, the other from the Volcan de Irazú, and may represent a different form. All the Costa Rican specimens examined (only four in number, however), have the pileum decidedly blacker than the majority of Chiriqui examples.

posterior portion of sides, anal region, and under tail-coverts, deep russet, becoming paler and more ochraceous next to the pale grayish of abdomen; bill black, the lower basal portion of mandible sometimes slightly paler; legs and feet black or very dark horn color (in dried skins); length (skins), 101-113 (107); wing, 51-59 (56.9); tail, 25-31.5 (31.3); exposed culmen, 15-16.5 (15.9); tarsus, 21.5-27 (24.9); middle toe, 14-16 (15).^a

Adult female.—Usually (?) undistinguishable as to coloration from the adult male, but sometimes with streaks on throat obsolete; length (skins), 103-112 (108); wing, 50.5-58 (54.7); tail, 26.5-32.5 (28.7); exposed culmen, 14.5-16 (15.4); tarsus, 22-26.5 (24.8); middle toe, 14-15.5 (15).^b

Young.—Essentially like adults, but pileum entirely dark warm-sepia or seal brown; chin and throat uniform pale gray, deepening on chest into sooty gray; auricular region dusky gray, narrowly streaked with white, the upper portion (postocular stripe) brownish black.

Chiriqui (Boquete; Volcan de Chiriqui), Veragua (Mina de Chorrcha; Cordillera del Chucu; Chitra; Calobre; Calovevora), and Costa Rica (Jiménez; San José; Santa Ana; La Palma de San José; Navarro de Cartago; Volcan de Irazú; Volcan de Poás; Volcan de Miravalles; El Achiote).

Heterorhina leucophrys (not *Troglodytes leucophrys* Tschudi) —AIRD, Review in Birds, 1864, 118, part (description; San José, Costa Rica).

Cyphorhinus leucophrys LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 92 (San José, Costa Rica).

Henicorhina leucophrys SALVIN, Proc. Zool. Soc. Lond., 1870, 181 (Calovevora, Chitra, Cordillera del Chucu, and Mina de Chorrcha, Veragua). —BORCHERS, Proc. Zool. Soc. Lond., 1878, 51 (Navarro, Costa Rica). —SALVIN and GOODMAN, Biol. Centr.-Am., Aves, i, 1879, 80, part (Costa Rican and Panamanian localities and references). —SHARPE, Cat. Birds Brit. Mus., vi, 1881, 286, part (Costa Rica; Veragua; Panama). —ZELEDON, Cat. Aves de Costa Rica, 1882, 3; Proc. U. S. Nat. Mus., viii, 1885, 105; Anal. Mus. Nac. Costa Rica, 1887, 105 (Santa Ana, La Palma de San José, and Naranjo de Cartago, Costa Rica). —NUTTING, Proc. U. S. Nat. Mus., v, 1883, 494 (Irazú, Costa Rica; habits). —CHERRIE, Proc. U. S. Nat. Mus., xiv, 1891, 518 (Volcan de Poás, Costa Rica; crit.). —UNDERWOOD, Ibis, 1896, 433 (Volcan de Miravalles, Costa Rica).

[*Henicorhina*] *leucophrys* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 6, part.

Henicorhina collina BANGS, Proc. New Engl. Zool. Club, iii, Jan. 30, 1902, 55 (Boquete, Chiriqui, 6,000 ft. alt.; coll. E. A. and O. Bangs).

H[enicorhina] leucophrys collina HELLMAYR, Journ. für Orn., Oct., 1903, 531.

^a Nine specimens, from Chiriqui.

^b Five specimens, from Chiriqui. The female from El Achiote, Costa Rica, measures as follows: Wing, 60; tail, 32; culmen, 15.5; tarsus, 25; middle toe, 16.5.

HENICORHINA LEUCOPHRYS CASTANEA Ridgway.

CHESTNUT WOOD WREN.

Similar to *H. l. collina*, but much darker (the back, etc., dark chestnut and flanks deeper or brighter chestnut), throat less distinctly streaked with black, and bill smaller.^a

Guatemala (exact locality unknown, but probably some part of the Atlantic slope).^b

Heterorhina griseicollis (not *Merularia griseicollis* Lafresnaye) BAIRD, Review Am. Birds, 1864, 117, part (spec. from Guatemala in Lawrence collection).

Henicorhina leucophrys castanea RIDGWAY, Proc. Biol. Soc. Wash., xvi, Nov. 30, 1903, 168 (eastern Guatemala; coll. Am. Mus. Nat. Hist.).

HENICORHINA LEUCOPHRYS CAPITALIS Nelson.

GRAY-CROWNED WOOD WREN.

Similar to *H. l. collina*, but median portion of pileum grayish sooty, back, etc., duller brown (nearer mummy brown than chestnut-brown or burnt-umber), the color of upper back more olivaceous and less strongly or abruptly contrasted with color of hindneck; throat less distinctly streaked with black (streaks sometimes wanting, except laterally); bill smaller.

Young.—Similar to adults, but entire pileum and hindneck uniform warm-sepia brown, only slightly different from color of back, etc., and white streaks on side of head narrower and less distinct.

Adult male.—Length (skins), 97–104 (101); wing, 56.5–57 (56.7); tail, 30–31 (30.3) exposed culmen, 14.5; tarsus, 22–23 (22.7); middle toe, 15–16 (15.3).^c

State of Chiapas, southern Mexico (Pinabete, Tumbala^d) and western Guatemala (Volcan de Fuego; Volcan de Agua; Totonicapam).

Cyphorinus prosthaleucus (not *Scytalopus prosthaleucus* Sclater) SALVIN and SCLATER, Ibis, 1860, 397 (Volcan de Agua, Guatemala).

Heterorhina griseicollis (not *Merularia griseicollis* Lafresnaye) BAIRD, Review Am. Birds, 1864, 117, part (Volcan de Fuego).

[*Henicorhina*] *leucophrys* (not *Troglodytes leucophrys* Tschudi) SCLATER and SALVIN, Nom. Av. Neotr., 1873, 6, part (Guatemala).

^a This character may prove inconstant or unimportant; the single specimen examined is of unknown sex, and the female of *H. l. collina* sometimes has the streaks on the throat obsolete.

^b Measurements of the type specimen are as follows: Wing, 54; tail, 27; exposed culmen, 13.5; tarsus, 24; middle toe, 15.5.

^c Three specimens.

^d The specimen from Tumbala, which is on the Atlantic slope, is in reality intermediate in coloration between true *H. l. capitalis* (represented by specimens from Pinabete and the Volcan de Fuego, both of which are on the Pacific slope) and *H. l. castanea*.

Henicorhina leucophrys BOUCARD, Liste Ois. Guat., 1878, 29.—SALVIN and GOMAN, Biol. Centr.-Am., Aves, i, 1879, 80, part (Guatemalan localities and references).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 288, part (Guatemala).
Henicorhina leucophrys capitalis NELSON, Auk, xiv, Jan., 1897, 74 (Pinabets Chiapas, s. Mexico; coll. U. S. Nat. Mus.).

HENICORHINA LEUCOPHRYS MEXICANA (Nelson).

MEXICAN WOOD WREN.

Similar to *H. l. capitalis*, but pileum and hindneck brown, nearly concolor with back, and brown of flanks much deeper and more rufescent (exactly as in *H. l. collina*); smaller, with longer tarsus.

Adult male.—Length (skins), 95–100 (98); wing, 51.5–55 (53.8); tail, 27–30 (28.2); exposed culmen, 13–14 (13.7); tarsus, 23.5–24 (23.5); middle toe, 15.^a

Adult female.—Length (skins), 92–96 (94); wing, 51–54 (52.2); tail, 25–28.5 (26.5); exposed culmen, 12–14 (13); tarsus, 20–22.5 (20.9); middle toe, 13.5–15 (14.6).^b

Southeastern Mexico, in States of Vera Cruz (Jalapa; Motozintla; Vera Cruz; Coatepec; Jico), Pueblo (Huachinango), and northern Oaxaca (Mount Zempoaltepec).

Heterorhina griseicollis (not *Merularia griseicollis* Lafresnaye) BAIRD, Review Am. Birds, 1864, 117, part (Jalapa, Vera Cruz).

Henicorhina leucophrys (not *Troglodytes leucophrys* Tschudi) SALVIN and GOMAN, Biol. Centr.-Am., Aves, i, 1879, 80, part (Jalapa, Vera Cruz, and Motozintla, Vera Cruz).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 288, part (Jalapa).

Henicorhina mexicana NELSON, Auk, xiv, Jan., 1897, 73 (Jico, Vera Cruz; coll. U. S. Nat. Mus.).—CHAPMAN, Bull. Am. Mus. N. H., x, 1898, 23 (Jalapa, Vera Cruz; song).

H[enicorhina] leucophrys mexicana NELSON, Proc. Biol. Soc. Wash., xvi, Nov. 30, 1903, 158, in text.

HENICORHINA LEUCOPHRYS FESTIVA Nelson.

GUERRERO WOOD WREN.

Similar to *H. l. mexicana*, but brown of upper parts duller or less rufescent, the pileum and hindneck grayish brown, this color sometimes extending over upper back.

Adult male.—Length (skins), 93–108 (100); wing, 52.5–56 (54.3); tail, 26.5–32.5 (29.9); exposed culmen, 14–14.5 (14.3); tarsus, 22–23.5 (22.5); middle toe, 13–14.5 (13.6).^c

Southwestern Mexico, in States of Guerrero (Omiteme; Chilpancingo) and Michoacan (Mount Tancitaro).

Henicorhina leucophrys festiva NELSON, Proc. Biol. Soc. Wash., xvi, Nov. 30, 1903, 158 (Omiteme, Guerrero, s. w. Mexico; coll. U. S. Nat. Mus.).

^a Three specimens.

^b Four specimens.

^c Seven specimens.

Genus NANNORCHILUS Ridgway.

Uropsila ^a (not *Uropsilus* Edwards, 1872) SCLATER and SALVIN, Nom. Av. Neotr., 1873, 155. (Type, *Troglodytes leucogastra* Gould.)

Hemiura (not *Hemiurus* Rudolphi, ^b 1809, nor Gervais, ^c 1855) RIDGWAY, Proc. U. S. Nat. Mus., x, Aug. 6, 1888, 511 (substitute for *Uropsila* Sclater and Salvin, preoccupied).

Nannorchilus ^d RIDGWAY, Proc. Biol. Soc. Wash., xvii, Apr. 9, 1904, 102. (Type, *Troglodytes leucogastra* Gould.)

Very small Troglodytidae (wing between 45 and 54 mm.) resembling *Troglodytes*, but with bill distinctly notched, nostril small, roundish or broadly oval, nonoperculate, opening in lower anterior portion of nasal fossa, tail less than two-thirds as long as wing, and under parts pale gray or grayish white, the upper grayish brown.

Bill shorter than head, straight, compressed beyond nostrils, its length at latero-frontal antiæ equal to much less than half the distance from nostril to tip of maxilla, decidedly greater than its width at same point; exposed culmen much shorter than tarsus (sometimes a little longer, sometimes a little shorter, than middle toe without claw), straight, or nearly so, for basal half (more or less) then gradually decurved terminally; gonys much shorter than distance from nostril to tip of maxilla, straight; maxillary tomium straight for most of its length but faintly decurved both terminally and basally, distinctly notched subterminally; rictus distinctly but gradually deflexed. Nostril small, longitudinally oval, nonoperculate, but with the naked membrane of nasal fossa surrounding it except on lower side. Rictal bristles obvious, two of them quite distinct. Wing short, much rounded; seventh, sixth, and fifth primaries longest and about equal; eighth shorter than fourth; ninth shorter than first, decidedly less than twice as long as tenth. Tail short, slightly more than three-fifths as long as wing, much rounded, the rectrices with broadly rounded tip. Tarsus much longer than exposed culmen or middle toe and claw, about two-fifths as long as wing, the acrotarsium distinctly scutellate, the planta tarsi booted; outer toe (without claw) reaching to decidedly beyond subterminal joint of middle toe, its claw falling very slightly short of middle claw; inner toe slightly shorter than outer but reaching to a little beyond subterminal joint of middle toe; hallux (without claw) equal to outer toe (without claw), but much thicker, its claw much shorter than the digit; basal phalanx of middle toe adherent to outer toe for nearly or quite its entire length, to inner toe for more than half its length.

Coloration.—Plain grayish brown above, the remiges very faintly, the rectrices more distinctly, barred with dusky; superciliary stripe

^a "Ουρος, cauda, et ψιλός, tenuis."

^c Exped. Castelnau, i, Mam., 1855, 101.

^b Entozoon Hist. Nat., ii, 1809, i, 38. ^d Νάννος, dwarf; δρχίλος, a wren.

and under parts white, the latter tinged with gray (especially on sides of neck and breast), becoming pale brownish on flanks.

Nidification.—Unknown.

Range.—Southern Mexico (including Yucatan) and adjacent part of Guatemala. (Monotypic.)

KEY TO THE SUBSPECIES OF *NANNORCHILUS LEUCOGASTER*.

- a. Tail indistinctly barred; under tail-coverts pale brown, spotted, not barred and darker brown, or else the bars grayish brown, not blackish.
- b. Paler and more rufescent, the upper parts isabella color to brownish cinnamon. (Southwestern Mexico.) *Nannorchilus leucogaster pacificus* (p. 61)
- bb. Darker, the upper parts deep russet-brown. (Chiapas and Tabasco to eastern Guatemala.) *Nannorchilus leucogaster musicus* (p. 62)
- Intermediate in color between b and bb. (Southern Tamaulipas to Oaxaca.) *Nannorchilus leucogaster leucogaster* (p. 63)
- aa. Tail distinctly barred with dusky; under tail-coverts whitish barred with dusky. (Yucatan and Campeche.) *Nannorchilus leucogaster brachyurus* (p. 63)

NANNORCHILUS LEUCOGASTER LEUCOGASTER (Gould).

GOULD'S WREN.

Adults in spring and summer.—Above plain buffy grayish brown (between broccoli brown and dark isabella color), the rectrices and secondaries narrowly and very indistinctly barred with darker; outer most primaries edged with pale buffy gray or grayish buffy; a broad and conspicuous superciliary stripe of white; a rather broad postocular streak of brown, involving more or less of upper portion of auricular region; suborbital and auricular regions (except upper margin of latter) grayish white, the feathers very narrowly and rather indistinctly margined or edged with grayish brown; malar region, chin, throat, chest, breast, and abdomen grayish white, the throat and abdomen nearly pure white, the chest (especially laterally) faintly shaded with pale gray; sides and flanks pale buffy brown or isabella color; under tail-coverts similar but paler, tipped with whitish or very pale grayish buffy, and marked with a subterminal spot or bar of deeper isabella color; axillars and under wing-coverts dull white, tinged with grayish buffy; inner webs of remiges edged (not sharply) with pale dull buffy; maxilla horn color, with paler tomia; mandible pale brownish or dull pale yellowish (in dried skins); legs and feet pale horn color (in dried skins).

Adults in autumn and winter.—Similar to the spring and summer plumage, but color of upper parts decidedly browner (cinnamon-brown or between russet and raw-umber).

Young.—Similar in coloration to adults, but flanks much paler (dull buffy whitish or very pale brownish buffy), and under tail-coverts immaculate pale buffy brown or isabella color.

Adult male.—Length (skins), 85–98 (93); wing, 48.5–52 (50.1); tail, 28.5–32 (30.1); exposed culmen, 12.5–14.5 (13.5); tarsus, 18–20 (18.9); middle toe, 11–12.5 (11.9).^a

Adult female.—Length (skins), 84–94 (90); wing, 45.5–48.5 (47); tail, 26.5–28.5 (27.5); exposed culmen, 12.5–13.5 (12.8); tarsus, 18–19.5 (18.7); middle toe, 11–12 (11.5).^b

Southeastern Mexico, in States of Vera Cruz (Pasa Nueva; Pueblo Viejo; Buena Vista), Puebla (Metlaltoyuca; Rinconada), Oaxaca (Playa Vicente; Tuxtepec), and southern Tamaulipas (Alta Mira).

Troglodytes leucogastra GOULD, Proc. Zool. Soc. Lond., 1836, 89 (Tamaulipas, n. e. Mexico; coll. Brit. Mus.).—BONAPARTE, Compt. Rend., xxxviii, 1854, —; Notes Orn. Coll. Delattre, 1854, 43.

[*Uropsila*] *leucogastra* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 7, 155.

Uropsila leucogastra SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 78 (Tamaulipas; Playa Vicente, Oaxaca).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 285, pl. 17.

Hemiura leucogastra RICHMOND, Proc. U. S. Nat. Mus., xviii, no. 1091, Aug. 12, 1896, 632 (Alta Mira, Tamaulipas).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xiv, 1897, 131, in text.

Cyphorhinus pusillus SCLATER, Proc. Zool. Soc. Lond., 1859, 372 (Playa Vicente, Oaxaca; coll. P. L. Sclater); Cat. Am. Birds, 1862, 20 (Playa Vicente).

[*Cyphorhinus*] *pusillus* GRAY, Hand-list, i, 1869, 193, no. 2670.

Heterorhina pusilla BAIRD, Review Am. Birds, Aug., 1864, 119 (Oaxaca).—LANTZ, Trans. Kansas Ac. Sci. for 1876–77 (1879), 224 (Rinconada, Puebla).

NANNORCHILUS LEUCOGASTER PACIFICUS (Nelson).

COLIMA WREN.

Similar to *N. l. leucogaster*, but color of upper parts paler and decidedly more rufescent (dull isabella color in spring and summer, brownish cinnamon in autumn and winter); wing and tail averaging slightly longer, tarsi and toes shorter.

Adult male.—Length (skins), 94–101 (97); wing, 48–53.5 (50.3); tail, 30–35.5 (32.6); exposed culmen, 12.5–14 (13.1); tarsus, 17.5–19 (18.2); middle toe, 10.5–11.5 (11.3).^c

Adult female.—Length (skins), 91–100 (96); wing, 46.5–49.5 (48); tail, 28.5–31 (30.5); exposed culmen, 12.5–14 (13.1); tarsus, 18–18.5 (18.1); middle toe, 10.5–11.5 (11).^d

Southwestern Mexico, in States of Colima (Manzanillo) and Guerrero (Acapulco; La Lagunilla; Tamarindo; Coyuca; Cayacal; Papayo).

Hemiura pacifica NELSON, Auk, xiv, Jan., 1897, 72 (Manzanillo, Colima, s. w. Mexico; coll. U. S. Nat. Mus.).

^a Eleven specimens.

^b Five specimens.

^c Nine specimens.

^d Four specimens.

NANNORCHILUS LEUCOGASTER MUSICUS (Nelson.)**PALENQUE WREN.**

Similar to *N. l. leucogaster* but decidedly darker, the upper part (in spring and summer plumage^a) deep russet brown (between rump and prouts brown), the flanks deep isabella color or wood brown.

Adult male. Length (skins), 90-99 (94.5); wing, 50-52 (51); tail, 28-29.5 (28.7); exposed culmen, 13; tarsus, 18-19 (18.5); middle toe, 11-11.5 (11.2).^a

Southern Mexico, in States of Tabasco (Teapa) and Chiapas (Palenque) and adjacent parts of Guatemala.

Hemiura leucogastra musica NELSON, Proc. Biol. Soc. Wash., xvi, Nov. 30, 1906, 159 (Teapa, Tabasco; coll. U. S. Nat. Mus.).

NANNORCHILUS LEUCOGASTER BRACHYURUS (Lawrence.)**TEMAX WREN.**

Similar to *H. l. leucogastra*, but bars on tail very much more distinct (both darker in color and more sharply defined), and under tail-coverts whitish distinctly barred with dusky.

Adult male.—Length (skins), 90-101 (96); wing, 46.5-52 (50.1); tail, 29.5-33 (31.5); exposed culmen, 13-14.5 (14); tarsus, 17.5-19.5 (18.5); middle toe, 11-12.5 (11.7).^b

Adult female.—Length (skins), 87-97 (91); wing, 46-49.5 (47.9); tail, 25.5-30 (28.1); exposed culmen, 12-13.5 (13); tarsus, 17.5-19.5 (18.7); middle toe, 10.5-12 (11.2).^c

Yucatan (Temax; Chichen-Itza; Tunkas; Puerto Morelos) and Campeche (Apazote; Campeche).

Troglodytes brachyurus LAWRENCE, Ann. N. Y. Acad. Sci., iv, no. 2, June, 1890, 67 (Temax, Yucatan; coll. G. N. Lawrence).

Hemiura brachyura CHAPMAN, Bull. Am. Mus. N. H., viii, Dec. 11, 1896, 27 (Chichen-Itza, Yucatan).

Genus THRYOPHILUS Baird.

Thryophilus BAIRD, Review Am. Birds, Aug., 1864, 127. (Type, *Thryothorus rufalbus* Lafresnaye.)

Medium sized to rather small Troglodytidae (wing 51-76 mm.) resembling *Pheugopedius*, but with bill distinctly notched, and nostrils small, roundish or oval, nonoperculate, opening into anterior end of nasal fossa.

Bill usually shorter than head, compressed anterior to nostrils, its depth at latero-frontal antiæ equal to much less than half (sometimes

^a Two specimens, one from Tabasco the other from Chiapas; an adult from Guatemala (sex not determined and exact locality unknown) is precisely similar in coloration.

^b Ten specimens.

^c Seven specimens.

less than one-third) the distance from nostril to tip of maxilla and slightly greater than its width at same point; exposed culmen longer than middle toe without claw, but much shorter than tarsus, nearly straight or very faintly curved for most of its length, gradually but not strongly decurved terminally; gonys decidedly shorter than distance from nostril to tip of maxilla, straight; maxillary tomium distinctly but not strongly concave, distinctly notched subterminally, the basal (rictal) portion distinctly, sometimes abruptly, deflexed. Nostril small, circular or oblong, opening in anterior end of nasal fossa, separated from feathering of latero-frontal antiæ by naked membrane, which also extends along the upper edge of the nostril. Rictal bristles obvious, one to three being fairly well developed. Wing moderate, much rounded, very concave beneath; seventh to fourth primaries longest and nearly equal, or sixth and fifth slightly longer than seventh and fourth, sometimes (in *T. pleurostictus*) the seventh and sixth longest; eighth of variable relative length (equaling the first, second, third, fourth, or fifth, respectively, in different species); ninth shorter than secondaries, decidedly less than twice as long as tenth. Tail two-thirds^a to nine-tenths^b as long as wing, much rounded (graduation sometimes equal to nearly one-third its length), the rectrices broadly rounded at tip. Tarsus longer than middle toe with claw, much longer than exposed culmen, about two-fifths to one-third as long as wing, the acrotarsium distinctly scutellate, the planta tarsi bootied; outer toe slightly longer than inner, reaching (without claw) to decidedly beyond subterminal joint of middle toe, its claw falling short of base of middle claw; hallux (without claw) as long as outer toe (without claw) but decidedly stouter, its claw decidedly shorter than the digit; basal phalanx of middle toe united to outer toe for most (sometimes all) of its length to inner toe for more than half its length.

Coloration.—Above ranging from grayish brown to chestnut-rufous, the pileum and hindneck sometimes black; remiges and rectrices more or less distinctly barred with black or dusky, the back sometimes faintly barred; under parts more variable, the general color whitish, grayish brown, or rufous, sometimes barred, more or less, with black, the throat, chest, and breast striped with black and white in one species.

Nidification.—The nidification of few species is known. *T. pleurostictus* builds a retort-shaped nest of dry grasses, lined with hairs and plant down, "fixed horizontally around the stem of a bush, often at the fork of two branches,"^a and lays eggs "of a beautiful greenish blue color."^c *T. sinaloa* also builds a nest "partly suspended from

^a In *T. thoracicus*.

^b In *T. modestus*.

^c Sumicharst, Bull. U. S. Nat. Mus., no. 4, 1876, 14.

branches and built of fine grass,"^a but the eggs are said to be "marked with specks of a brownish color."^a

Range.—Tropical portions of Mexico and southward to southern Brazil, Bolivia, and Peru. (Numerous species.)

KEY TO THE SPECIES AND SUBSPECIES OF *THRYOPHILUS*.

a. Pileum black.

b. Under parts tawny or chestnut. (*Thryophilus castaneus*.)

c. Under parts tawny, distinctly barred with black, at least on sides. (Isthmus of Panama, north to Chiriqui.) *Thryophilus castaneus castaneus* (p. 624)

cc. Under parts bright chestnut or rufous-chestnut, indistinctly, if at all barred. (Eastern Costa Rica and Nicaragua.)

Thryophilus castaneus costaricensis (p. 625)

bb. Under parts white, barred with black or dusky. (*Thryophilus nigricapillus*.)

c. Chin and throat immaculate white; bars of under parts narrower, duller black, or dusky; back, etc., lighter chestnut or chestnut-rufous. (Western Ecuador and Colombia.)

Thryophilus nigricapillus nigricapillus (extralimital.)

cc. Chin and throat barred with black or dusky, the bars of other under parts broader, more decidedly black; back, etc., darker chestnut. (Rio Truanda, northwestern Colombia.) *Thryophilus nigricapillus schottii* (p. 626)

aa. Pileum not black.

b. Pileum bright chestnut (margined laterally and anteriorly with black) concolorous with back; under parts white, narrowly and regularly barred with black (Isthmus of Panama to southwestern Costa Rica.)

Thryophilus semibadius (p. 627)

bb. Pileum not bright chestnut (if approaching chestnut not margined laterally and anteriorly with black, and under parts not barred with black); under parts not narrowly and regularly barred with black.

c. Throat and chest striped with black or dark sooty gray, or (in some young examples) uniform sooty brown. (Eastern Nicaragua to Chiriqui and Veragua.) *Thryophilus thoracicus* (p. 628)

cc. Throat and chest neither striped nor uniform sooty.

d. Sides and flanks broadly barred with blackish. (*Thryophilus pleurostictus*.)

e. Throat and median portion of chest and breast immaculate white.

f. Duller brown above, the secondaries more distinctly barred; median under parts more narrowly white; larger (adult male averaging wing 66.1, tail 53.9, exposed culmen 17.8; adult female, wing 61.3, tail 48.9, exposed culmen 16.7). (Southwestern Mexico, in States of Guerrero, Oaxaca, and Chiapas; Guatemala?; Honduras?).

Thryophilus pleurostictus pleurostictus (p. 629)

^a Grayson, Mem. Bost. Soc. N. H., ii, 1874, 268.

^b *Thryothorus nigricapillus* Sclater, Proc. Zool. Soc. Lond., 1860, 84 (Nanegal, w. Ecuador; coll. P. L. Sclater).—[*Thryophilus*] *nigricapillus* Sclater and Salvin, Nom. Av. Neotr., 1873, 7.—*Thryophilus nigricapillus* Sclater and Salvin, Proc. Zool. Soc. Lond., 1879, 493 (Antioquia, Colombia); Salvin and Godman, Biol. Centr.-Am., Aves, i, 1881, 89, part; Sharpe, Cat. Birds Brit. Mus., vi, 1881, 217, part (Nanegal, w. Ecuador; Santa Elena, Colombia).—[*Troglodytes*] *nigricapillus* Gray, Hand-list, i, 1869, 189, no. 2569.

I have not seen Colombian specimens from the localities cited, and therefore am not sure they are identical in characters with the Ecuadorean bird.

- ff.* More rufescent or cinnamonaceous brown above, the secondaries less distinctly barred; median under parts more broadly white; smaller (adult male averaging, wing 64, tail 48.7, exposed culmen 17; adult female, wing 58.5, tail 44.2, exposed culmen 16). (Western Nicaragua; western Costa Rica?).....***Thryophilus pleurostictus rarus*** (p. 631)
- ce.* Throat and median portion of chest and breast barred, streaked, or otherwise marked with blackish. (Southern Mexico, in States of Morelos and Puebla.).....***Thryophilus pleurostictus nisorius*** (p. 631)
- cd.* Sides and flanks not barred.
- e.* Under tail-coverts barred.
- f.* Upper parts chestnut-rufous or brownish rufous. (*Thryophilus rufalbus*.)
- g.* Blackish bars on tail much less than half as wide as the rufescent interspaces; sides and flanks grayish. (Guatemala; Honduras?)
Thryophilus rufalbus rufalbus (p. 632)
- gg.* Blackish bars on tail not less than half as wide as rufescent interspaces; sides and flanks fulvous brown.
- h.* Larger and brighter colored (adult male averaging, wing 70.1, tail 52.1, exposed culmen 19.1, tarsus 24.3; adult female, wing 68, tail 50.5, exposed culmen 18.6, tarsus 23.4. (Eastern Nicaragua to Colombia.)***Thryophilus rufalbus castanonotus*** (p. 633)
- hh.* Smaller and duller colored (adult male, wing 68, tail 50, exposed culmen 17.5, tarsus 23; adult female, wing 62, tail 45, exposed culmen 16.5, tarsus 22.5). (Coast of Venezuela and adjacent portion of Colombia.)
Thryophilus rufalbus cumanensis (extralimital)^a
- ff.* Upper parts grayish brown to russet brown. (*Thryophilus sinaloa*.)
- g.* Browner above.
- h.* Deep russet-brown above, becoming cinnamon-rufous or light chestnut on upper tail-coverts. (Southwestern Mexico, in State of Guerrero.)***Thryophilus sinaloa russeus*** (p. 637)
- hh.* Raw-umber brown above, becoming russet on upper tail-coverts. (Western Mexico, in States of Jalisco, Sinaloa, and southern Sonora, and Territory of Tepic.)
Thryophilus sinaloa sinaloa (p. 635)
- gg.* Grayer above, the back, etc., broccoli brown, becoming cinnamonaceous wood brown on upper tail-coverts. (Northwestern Mexico, in States of Sonora, Chihuahua, and Durango.)
Thryophilus sinaloa cinereus (p. 636)
- ee.* Under tail-coverts immaculate.
- f.* Remiges distinctly barred with blackish; under parts of body entirely buffy or tawny.
- g.* Under parts tawny-ochraceous, deeper on flanks and under tail-coverts; pileum and back raw-umber brown. (*Thryophilus galbraithii*.)

^a *Thryophilus rufalbus cumanensis* Chapman, Auk, xiv, Oct., 1897, 363, 367 (ex *Troglodytes cumanensis* Lichtenstein, Nom. Av. Mus. Berol., 1854, 34; type, in coll. Berlin Mus., said by Cabanis, in Journ. für Orn., 1860, 408, to be from Cartagena, Colombia).

Although I have not seen specimens from Cartagena, those from Cumanacoa, Venezuela, mentioned by Mr. Chapman, as cited above, are certainly different from *T. r. castanonotus*.

- h. Slightly smaller and paler (adult male averaging, wing 64.4, tail 44.2, exposed culmen 17.9, tarsus 24.4; adult female, wing 61.7, tail 42, exposed culmen 17.4, tarsus 24.1). (Isthmus of Panama and coast of Colombia to Cartagena.)

Thryophilus galbraithii galbraithii (p. 65)

- hh. Slightly larger and darker (adult male averaging, wing 66.5, tail 43.3, exposed culmen 18.3, tarsus 25.2; adult female, wing 62.1, tail 42.1, exposed culmen 17.5, tarsus 24). (San Miguel Island, Gulf of Panama.) *Thryophilus galbraithii conditus* (p. 68)

- gg. Under parts pale buff, deeper buff or clay color on flanks and under tail-coverts; pileum and back light broccoli brown. (Coast of Colombia at mouth of Rio Magdalena.)

Thryophilus pallescens (extralimital)

- ff. Remiges very indistinctly or obsoletely barred with a slightly darker shade than the ground color; under parts of body with buff or tawny (if present) confined to sides, flanks, and under tail-coverts.

- g. Smaller (wing 51.5-65, tail 44.5-56, exposed culmen 14.5-18.5, tarsus 22-25); above russet-brown (duller and more grayish on head; sides and flanks tawny-brown. (*Thryophilus modestus*.)

- h. Intermediate in coloration. (Nicaragua and Costa Rica.)

Thryophilus modestus modestus (p. 65)

- hh. Representing extremes of coloration.

- i. Slightly paler and grayer above than the type. (Chiriqui to Panama Railway.) *Thryophilus modestus elutus* (p. 64)

- ii. Slightly darker and browner than the type. (State of Chiapas, southern Mexico; Guatemala; Honduras?)

Thryophilus modestus pallus (p. 64)

- gg. Larger (wing 60-68, tail 47-54, exposed culmen 19-21, tarsus 25-27, above grayish olive, sides and flanks buffy grayish brown. (Eastern Costa Rica and Nicaragua.) *Thryophilus zeledoni* (p. 64)

THRYOPHILUS CASTANEUS CASTANEUS (Lawrence).

RAY WREN.

Adults (sexes alike).—Pileum, nape, and upper part of sides of neck uniform black; lower hindneck and sides of neck, back, scapulars, rump, and lesser wing-coverts uniform clear bright chestnut, the upper tail-coverts similar but more or less distinctly barred with dusky; tail black, the middle rectrices and outer webs of other rectrices barred with light chestnut or russet; greater wing-coverts and remiges barred with black and light chestnut or russet, the bars of the two colors about equal in width; a narrow superciliary line, lores, sub-orbital region, auricular region, and malar region white, the suborbital region and anterior and upper portion of auricular region more or less streaked with dusky, with dusky or grayish black predominating: a

^a *Thryophilus pallescens* Lawrence, manuscript, on label. The type is from Barranquilla, Colombia, and clearly represents a form distinct from *T. galbraithii*, than which it is smaller and many shades paler. It may possibly have already been adequately described under some other name, but if so I fail to identify it.

more or less distinct submalar streak of black, posteriorly confluent with black on side of neck; chin and upper throat white, posteriorly shading into buff on lower throat, this more or less gradually deepening posteriorly into deep tawny on under parts of body, deepest on flanks, where the color inclines to chestnut-tawny or dark cinnamon-rufous; under tail-coverts and under parts of body more or less distinctly barred with black or dusky, and median portion of chest, breast, and abdomen sometimes immaculate; maxilla black, with paler tomia; mandible pale grayish (light bluish gray in life?); iris reddish brown;^a legs and feet blackish or dark horn color.

Young.—Similar to adults, but black of head and chestnut of upper parts slightly duller, and under parts indistinctly barred.

Adult male.—Length (skins); 130–142 (138); wing, 68.5–70 (69.2); tail, 52.5–54.5 (53.1); exposed culmen, 20–20.5 (20.2); tarsus, 25–27 (25.6); middle toe, 16–17 (16.5).^b

Adult female.—Length (skins), 122–139 (132); wing, 63.5–72 (66.5); tail, 48.5–56 (51.8); exposed culmen, 17–17.5 (17.2); tarsus, 24.5–25 (24.8); middle toe, 14.5–17 (15.5).^c

Isthmus of Panama, from line of Panama Railway (Aspinwall; Lion Hill; Panama) north to Chiriqui and Veragua (Santiago).

Thryothorus nigricapillus? (not of Sclater) LAWRENCE, Ann. Lyc. N. Y., vii, 1861, 293 (Lion Hill, Panama R. R.).

Thryothorus castaneus LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., vii, June, 1861, 321 (Lion Hill, Panama R. R.; coll. G. N. Lawrence).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 346 (Lion Hill).—SALVIN, Proc. Zool. Soc. Lond., 1867, 134 (Santiago, Veragua).

[*Thryothorus*] *castaneus* BAIRD, Review Am. Birds, 1864, 123 (diagnosis).

Thryophilus castaneus BAIRD, Review Am. Birds, Sept., 1864, 133 (Panama R. R.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 88, part (Santiago, Veragua; Lion Hill, Panama R. R.).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 216, excl. syn. part (Lion Hill).—BANGS, Proc. New Engl. Zool. Club, ii, 1900, 27 (Lion Hill).

[*Thryophilus*] *castaneus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 6, part (Panama).

T[hyrophilus] castaneus castaneus HELLMAYR, Verh. k. k. zool.-bot. Gesellsch. Wien, 1901, 767, in text.

Troglodytes castaneus GRAY, Hand-list, i, 1869, 190, no. 2596.

THRYOPHILUS CASTANEUS COSTARICENSIS (Sharpe).

OOSTA RIGAN BAY WREN.

Similar to *T. c. castaneus*, but slightly larger and much more richly colored, the back, etc., deeper chestnut, the under parts deep tawny-chestnut, more abruptly contrasted with white of throat, and without

^a Heyde, manuscript.

^b Four specimens.

^c Three specimens.

distinct bars except on under tail-coverts, even the latter sometimes indistinctly barred.^a

Adult male.—Length (skins), 140–147 (143); wing, 65–71 (69.8); tail, 54–60 (55.8); exposed culmen, 19–20 (19.6); tarsus, 24–27 (25.7); middle toe, 16–17.5 (16.8).^b

Adult female.—Length (skins), 133–147 (140); wing, 64–72 (66.3); tail, 49–53 (51.5); exposed culmen, 17–20 (19); tarsus, 24–25 (24.8); middle toe, 15–18 (16).^b

Eastern Costa Rica (Pacuare; Jiménez; Limon; Rio Frio; Talamanca; San José; Angostura; Tucurrique; Rio Sucio) and Nicaragua (Greytown; Los Sábalo; Rio Escondido).

Thryophilus castaneus (not *Thryothorus castaneus* Lawrence, 1861) LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 93 (Pacuare and Angostura, Costa Rica).—FRANTZ, Journ. für Orn., 1869, 291 (Costa Rica).—BOUCARD, Proc. Zool. Soc. Lond., 1878, 51 (Costa Rica).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 88, part (Pacuare, Angostura, and Tucurrique, Costa Rica).—ZELEDON, Cat. Aves de Costa Rica, 1882, 3.—NUTTING, Proc. U. S. Nat. Mus., vi, 1884, 398 (Los Sábalo, Nicaragua).

[*Thryophilus*] *castaneus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 6, part (Costa Rica).

Thryophilus costaricensis SHARPE, Cat. Birds Brit. Mus., vi, 1881, 217 (Costa Rica; coll. Brit. Mus.).—REICHENOW and SCHALOW, Journ. für Orn., 1884, 428 (reprint of orig. descr.).—ZELEDON, Proc. U. S. Nat. Mus., viii, 1885, 105; Anal. Mus. Nac. Costa Rica, i, 1887, 105 (Jiménez and Rio Sucio, Costa Rica).—CHERRIE, Proc. U. S. Nat. Mus., xiv, 1891, 519 (Costa Rica; Los Sábalo, Nicaragua; crit.).—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 482 (Greytown and Rio Escondido, Nicaragua; Rio Frio, Costa Rica; habits).—SALVIS, Bull. Brit. Orn. Club, no vi, 1893, p. xxxii (Nicaragua).

T[hr]yophilus castaneus costaricensis HELLMAYR, Verh. k. k. zool.-bot. Gesellsch. Wien, 1901, 767, in text.

THRYOPHILUS NIGRICAPILLUS SCHOTTII (Baird).

SCHOTT'S WREN.

Similar to *T. n. nigricapillus*,^c but back, etc., darker chestnut and under parts more heavily or uniformly barred with black, the whole throat narrowly barred, instead of immaculate white.

Adult (sexes alike).—Pileum, nape, and sides of neck uniform black; rest of upper parts bright chestnut, the wings and tail broadly barred with black (the bars narrower and less distinct on wing-coverts); a very narrow superciliary streak of white; suborbital region and upper anterior portion of auricular region black; posterior and lower portions of auricular region and malar region white, narrowly streaked with black; chin and throat white, narrowly and irregularly barred

^a Occasionally there are more or less distinct dusky bars on abdomen or sides, sometimes both; and there can be no question as to the intergradation of this form with the Panama type.

^b Six specimens.

^c See page 622.

with black; chest, breast, and abdomen white, regularly and broadly barred with black, the sides, flanks, and under tail-coverts more broadly barred with black and pale chestnut or light rusty; maxilla dusky, with paler tomia; mandible pale; legs and feet dusky or horn color (in dried skins); length (skin), 140.5; ^a wing, 63–66.5 (64.7); ^b tail, 49.5; ^a exposed culmen, 18; ^a tarsus, 24.5–25 (24.7); ^b middle toe, 14.5–16.5 (15.5).^b

Northwestern Colombia (Rio Truando, Isthmus of Panama; Antioquia ?).

Thryothorus nigricapillus (not of Sclater) CASSIN, Proc. Ac. Nat. Sci. Phila., 1860, 193 (Rio Truando, Isthmus Panama).

(f) *Thryophilus nigricapillus* SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1879, 493 (Antioquia, Colombia).

Thryophilus nigricapillus SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 39, part (Truando, Isthmus Panama; Colombia ?).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 217, part.

[*Thryophilus*] *nigricapillus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 7, part.

[*Thryothorus*] *schottii* BAIRD, Review Am. Birds, Aug., 1864, 123 (diagnosis).

Thryothorus schottii BAIRD, Review Am. Birds, Sept., 1864, 133 (Rio Truando, n. Colombia; coll. U. S. Nat. Mus.).

THRYOPHILUS SEMIBADIUS (Salvin).

SALVIN'S WREN.

Adults (sexes alike).—Pileum, hindneck, back, scapulars, rump, and upper tail-coverts uniform bright chestnut, the upper tail-coverts sometimes indistinctly barred with dusky; tail black with narrow, incomplete bars of pale rusty brown or brownish white, the inner webs (except of middle rectrices) mostly or wholly uniform blackish; wings dull black, the primaries duller, more brownish slaty; lesser coverts narrowly barred with rusty brown; middle and greater coverts barred with white; secondaries barred with light chestnut (sometimes with pale buffy brown); outer webs of primaries with small spots along edge, or serrated edging, of white or very pale brownish; a narrow, more or less interrupted, superciliary streak of white, margined above by a narrow line of black; lores white, becoming grayish or dusky toward eye; auricular, suborbital, and malar regions and sides of neck white broadly streaked with black; chin and most of throat white; rest of under parts very regularly barred with white and black, the black bars narrower than the white ones anteriorly, broader on flanks and under tail-coverts, where the paler bars are more or less strongly pale rusty brown or tinged with the same; maxilla blackish with paler tomia; mandible pale yellowish or grayish (pale yellow in life^a); iris chestnut; ^c legs and feet black.^c

Adult male.—Length (skins), 133–138 (135.5); wing, 63–64 (63.5);

^a One specimen.

^c Zeledon, manuscript.

^b Two specimens, neither with sex determined.

tail, 49-50.5 (49.7); exposed culmen, 17-19 (18); tarsus, 24; middle toe, 15-15.5 (15.2).^a

Adult female.—Length (skins), 123-135 (127.7); wing, 62-65 (64); tail, 46.5-49 (47.5); exposed culmen, 17-18 (17.3); tarsus, 23-24 (23.5); middle toe, 15-16 (15.3).^b

Veragua (Bugaba; Bibalá) and southwestern Costa Rica (Pozo Azul de Pirris; Pozo Azul de Pital; Lagarto; Buenos Aires; Palmar; Cabagra; Pirris).

Thryothorus semibadius SALVIN, Proc. Zool. Soc. Lond., 1870, 181 (Bugaba, Veragua; coll. Salvin and Godman).

[*Thryophilus*] *semibadius* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 7.

Thryophilus semibadius SALVIN and GODMAN, Biol. Centr.-Am. Aves, i, 1880, 8, pl. 6, fig. 3.—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 216 (Bibalá, Veragua).—ZELEDON, Proc. U. S. Nat. Mus., viii, 1885, 105 (Costa Rica); Anal. Mus. Nac. Costa Rica, i, 1887, 105 (Pozo Azul de Pirris, s. w. Costa Rica).—CHERRIE, Proc. U. S. Nat. Mus., xiv, 1891, 520 (crit.); Expl. Zool. Val. El Naranjo, 1893, 9 (Pozo Azul de Pital, s. w. Costa Rica); Expl. Zool. Mérida, Costa Rica, 1893, 11 (Palmar, Lagarto, Buenos Aires, and Cabagra, s. w. Costa Rica, 25 to 600 m.; crit.).

THRYOPHILUS THORACICUS (Salvin).

STRIPED-BREASTED WREN.

Adults (sexes alike).—Above plain brown (varying from olive-brown to nearly mummy brown), duller and more olivaceous on pileum, more rufescent (mummy brown to nearly russet-brown) on rump and upper tail-coverts; back and scapular sometimes showing very faint narrow bars of dusky; wings and tail lighter and more grayish brown, broadly barred with black; a narrow white superciliary stripe, margined above by a more or less distinct narrow line of black; auricular region and suborbital region white, streaked with black, the upper portion of the former uniform black, forming a more or less broad and distinct postocular stripe; sides of neck streaked black and white, throat, chest, and upper breast white, broadly streaked with black, the streaks narrower on throat; abdomen also sometimes similarly but more irregularly streaked; sides and flanks brown (varying from grayish olive to rusty brown or nearly russet), usually immaculate, but sometimes faintly and sparsely barred with dusky; under tail-coverts pale rusty or pale brownish buffy, barred with blackish; maxilla black or blackish brown, with paler tomia; mandible pale grayish (bluish gray in life?); iris brown; legs and feet horn color or dusky (in dried skins).

Young.—Essentially like adults in coloration of upper parts, but under parts very different, the parts which are conspicuously streaked in adults being deep brownish gray, indistinctly streaked with dull

^a Two specimens.

^b Three specimens.

whitish, or uniform deep olive, with only the sides of head and part of throat very narrowly streaked with whitish.

Adult male.—Length (skins), 110–120 (115.3); wing, 57–59 (57.9); tail, 37.5–40 (38.6); exposed culmen, 15–18 (16.4); tarsus, 20–22 (21); middle toe, 13–15 (13.9).^a

Adult female.—Length (skins), 107–115 (111.8); wing, 54–60 (56.6); tail, 37–39 (37.6); exposed culmen, 16; tarsus, 21; middle toe, 13.^b

Eastern Nicaragua (Greytown; Los Sábalos; Rio Escondido) and Costa Rica (Rio Frio; Talamanca; Siguerres; Pacuare; Juiz; Jiménez; Turrialba; Tucurrique; Santa Rosa; San Carlos; Val; Cervantes) to Isthmus of Panama (Santiago, Veragua; Cascajal, Province of Coclé).

Thryothorus thoracicus SALVIN, Proc. Zool. Soc. Lond., 1864, 580 (Tucurrique, Costa Rica; coll. Salvin and Godman); 1867, 134 (Santiago, Veragua).

Thryophilus thoracicus LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 93 (Tucurrique and Santa Rosa, Costa Rica).—BOUCARD, Proc. Zool. Soc. Lond., 1878, 51 (San Carlos, Costa Rica).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 86, pl. 6, figs. 1, 2.—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 215.—ZELEDON, Cat. Aves de Costa Rica, 1882, 3; Proc. U. S. Nat. Mus., viii, 1885, 105; Anal. Mus. Nac. Costa Rica, i, 1887, 105 (Jiménez and Pacuare, Costa Rica).—NUTTING, Proc. U. S. Nat. Mus., vi, 1884, 398 (Los Sábalos, Nicaragua).—CHERRIE, Proc. U. S. Nat. Mus., xiv, 1891, 520 (Costa Rica; crit.).—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 483 (Rio Escondido, Nicaragua; habits).

[*Thryophilus*] *thoracicus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 7.

[*Troglodytes*] *thoracicus* GRAY, Hand-list, i, 1869, 190, no. 2591.

Thryothorus brunneus LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., viii, Oct., 1865, 179 (Greytown, Nicaragua; coll. U. S. Nat. Mus.; =young).

THRYOPHILUS PLEUROSTICTUS PLEUROSTICTUS (Sclater).

SCLATER'S BANNED WREN.

Adults (sexes alike).—Above plain cinnamon-brown, duller (approaching broccoli brown) on pileum, brighter on rump, the upper tail-coverts deep cinnamon or russet; tail deep cinnamon or russet, barred, more or less regularly, with dusky; wings similar in color to back, the remiges barred with grayish dusky or dull blackish, the greater coverts less distinctly barred (bars sometimes obsolete); alula dusky, edged with white or whitish; outermost middle coverts sometimes with a whitish terminal spot and subterminal dusky bar; a conspicuous superciliary stripe of white; a broad postocular streak or stripe of brown; sides of neck broadly streaked with white and black; loreal region pale grayish; suborbital region, malar region and auricular region (except upper portion) white, the last (sometimes the first also) narrowly streaked (more or less distinctly) with dusky; under parts white, the under tail-coverts, sides, and flanks broadly barred or banded with black, these markings sometimes more broken and irregular on ante-

^a Eight specimens.

^b Five specimens.

rior portion of sides; flanks more or less tinged with brown; maxilla horn color or dusky brown, with paler tomia; mandible pale (lilaceous or pale pinkish gray in life; ^a iris brown; ^a legs and feet light horn color.

Young.—Similar to adults in coloration of upper parts, but under parts dull white medially, pale rusty brown laterally, without dusky bars or bands, but the lower throat indistinctly streaked or flecked with dusky, the chest mottled with the same; superciliary stripe much less distinct than in adults.

Adult male.—Length (skins), 130–154 (141); wing, 63–69.5 (66.1); tail, 49–58.5 (53.9); exposed culmen, 17–19 (17.8); tarsus, 20.5–24 (22.2); middle toe, 12–15 (13.9).^b

Adult female.—Length (skins), 125–144 (134); wing, 59.5–65.5 (61.3); tail, 46.5–54.5 (48.9); exposed culmen, 15–18 (16.7); tarsus, 20.5–22.5 (21.6); middle toe, 12–15 (13.7).^c

Southeastern Mexico, in States of Guerrero (Apiluluca; ^d Rio Balsas¹), Oaxaca (Chimalapa; Tapana; Santa Efigenia; Guichicovi; San Juan del Rio), and Chiapas; Guatemala (Vera Paz)?; Salvador (Conchagua)?; Honduras?

Thryothorus pleurostictus SCLATER, Ibis, ii, Jan., 1860, 30 ("Vera Paz," Guatemala: coll. P. L. Sclater); Cat. Am. Birds, 1862, 21, pl. 4; Proc. Zool. Soc. Lond. 1870, 551, part (Mexico; Guatemala).—LAWRENCE, Bull. U. S. Nat. Mus. no. 4, 1876, 13 (Tapana, Guichicovi, and Santa Efigenia, Oaxaca; ¹ *habitus* descr. eggs).

[*Thryothorus*] *pleurostictus* BAIRD, Review Am. Birds, 1864, 121 (diagnosis).

^a Sumichrast.

^b Nineteen specimens.

^c Fourteen specimens.

Specimens from different geographic areas compare in average measurements as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Two adult males from interior of Guerrero.....	68	57	17.5	21.5	13.7
Three adult males from coast of Guerrero.....	66	54.5	18	22	13.4
Ten adult males from Oaxaca.....	66.1	53.2	17.9	22.2	13.7
Four adult males from Chiapas.....	65.2	53.6	18	22.7	14.7
FEMALES.					
Two adult females from interior of Guerrero.....	62.2	51.2	16.5	20.5	13.5
One adult females from coast of Guerrero.....	64.5	50.5	17	21.5	14
Eight adult females from Oaxaca.....	60.8	48.4	16.9	21.7	13.2
Four adult females from Chiapas.....	61	48.3	16.6	22	13

Specimens from the interior of Guerrero (Rio Balsas and Apiluluca) show a decided approach in coloration toward *T. p. nisorius*.

^d Specimens from these two localities show a decided approach in coloration to *T. p. nisorius*.

7-71 (69); tail, 56-58 (57); exposed culmen, 15-18 (16.7); tarsus, 3-24 (23.5); middle toe, 16-16.5 (16.2).^a

Young.—Similar in color of upper parts to adults, but darker and duller, especially on pileum; superciliary stripe narrower, less sharply defined, brownish buffy; under parts dull grayish white medially, the chest sparsely flecked with dusky; lateral under parts dull grayish brown, tinged with rusty brown or chestnut; under tail-coverts pale rusty, barred with dusky.

Highlands of western Guatemala (Volcan de Fuego; Dueñas; Savana Grande; San Diego; Escuintla, Retalhuleu; Coban); Honduras?

Thriothorus rufalbus LAFRESNAYE, Rev. Zool., viii, 1845, 337 ("Mexico;" type in coll. Boston Soc. Nat. Hist.; see Ridgway, Proc. Bost. Soc. N. H., xxiii, 1888, 386).

Thryothorus rufalbus BONAPARTE, Consp. Av., i, 1850, 221.—SCLATER and SALVIN, Ibis, 1859, 8 (Dueñas, Guatemala).

[*Thryophilus*] *rufalbus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 6, part (Guatemala).

Thryophilus rufalbus SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 82, part (Volcan de Fuego, Dueñas, Savana Grande, San Diego, Escuintla, Retalhuleu, and Coban, Guatemala).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 212, part (Guatemala).—SALVIN, Cat. Strickland Coll., 1882, 77 (Guatemala).—RIDGWAY, Proc. Bost. Soc. N. H., xxiii, 1888, 386 (remarks on type specimen).

T[hyophilus] rufalbus rufalbus HELLMAYR, Verh. k. k. zool.-bot. Gesellsch. Wien, 1901, 767, in text.

T[roglodytes] rufalbus GRAY, Gen. Birds, i, 1847, 158.

[*Thryothorus*] *poliopleura* BAIRD, Review Am. Birds, Aug., 1864, 122 (diagnosis).

Thryophilus rufalbus, var. *poliopleura* BAIRD, Review Am. Birds, Aug., 1864, 128 (Savana Grande, Guatemala; coll. U. S. Nat. Mus.).

[*Troglodytes*] *poliopleurus* GRAY, Hand-list, i, 1869, 190, no. 2599.

Thryophilus rufalbus poliopleura GOODE, Bull. U. S. Nat. Mus., no. 20, 1883, 345.

THRYOPHILUS RUFALBUS CASTANONOTUS Ridgway.

CHESTNUT-BACKED WREN.

Similar to *T. r. rufalbus*, but black bars on tail much broader, usually more than half as wide as the chestnut interspaces on middle rectrices, sometimes even wider; dusky bars on secondaries broader and darker in color; dusky streaks on sides of head broader; sides and flanks tawny-brown instead of grayish.

Adult male.—Length (skins), 130-162 (143.8); wing, 66-74 (70.1); tail, 48-57.5 (52.1); exposed culmen, 18-21 (19.1); tarsus, 23.5-26.5 (24.3); middle toe, 15.5-17 (16).^b

Adult female.—Length (skins), 129.5-148 (140.6); wing, 64-76

^a Three specimens, including two of Lafresnaye's types; none of them with sex determined.

^b Ten specimens.

(67.5); tail, 46.5-57 (50.1); exposed culmen, 17-20 (18.5); tarsus, 22-25.5 (23.6); middle toe, 14-17 (16.1).^a

Nicaragua (Sucuyá) and Costa Rica (Angostura; San José; San Mateo; Monte Redondo; Alajuela; Bebedero; Volcan de Irazú; Lagarto; Pozo Azul de Pirris; Guaitil; La Palma de Nicoya) to northern Colombia (Cacagualito; Bonda; Obispo; Massinga la Vega; Minca).

Thryothorus rufalbus (not of Lafresnaye) SCLATER, Proc. Zool. Soc. Lond., 1862, 140 (David, Chiriqui); Cat. Am. Birds, 1862, 20, part (Santa Marta, Colombia).—CABANIS, Journ. für Orn., 1860, 408 (Costa Rica).—LAWRENCE, Ann. Lyc. N. Y., viii, 1863, 5 (Panama R. R.), 175 (David, Chiriqui).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 345 (Panama R. R.).—FRANTZ, Journ. für Orn., 1869, 291 (San José, Costa Rica).—SALVIN, Proc. Zool. Soc. Lond., 1870, 181 (Chitra, Castillo, and Calovevora, Veragua).

[*Thryothorus*] *rufalbus* BAIRD, Review Am. Birds, 1864, 122 (diagnosis).

Thryophilus rufalbus, var. *rufalbus* BAIRD, Review Am. Birds, Aug., 1864, 128, part (Panama R. R.; Costa Rica).

Thryophilus rufalbus LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 92 (San Mateo, Costa Rica).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 82, part (San José, Volcan de Irazú, San Mateo, and Bebedero, Costa Rica; David, Boca de Chitra, Castillo, and Calovevora, Veragua; Panama R. R.; Obispo, Colombia).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 212, part (Paraiso station, Panama R. R.; Calobre, Veragua; Costa Rica).—ZELEDON, Cat. Aves Costa Rica, 1882, 3; Proc. U. S. Nat. Mus., viii, 1885, 105 (Costa Rica).—NUTTING, Proc. U. S. Nat. Mus., v, 1882, 390 (La Palma de Nicoya, Costa Rica; habits; song); vi, 1883, 381 (Sucuyá, Nicaragua; habits; song).

[*Thryophilus*] *rufalbus* SCLATER and SALVIN, Nom. Av., Neotr., 1873, 6, part.

[*Troglodytes*] *rufalbus* GRAY, Hand-list, i, 1869, 190, no. 2593.

Thryophilus rufalbus rufalbus GOODE, Bull. U. S. Nat. Mus., no. 20, 1883, 345.

Thryothorus longirostris (not *Troglodytes longirostris* Vieillot) LAWRENCE, Ann. Lyc. N. Y., vii, 1861, 320 (Panama R. R.).

Thryophilus rufalbus castanonotus RIDGWAY, Proc. Bost. Soc. N. H., xxiii, Mar., 1888, 386, in text (Nicaragua to Colombia; type from Angostura, Costa Rica, in coll. U. S. Nat. Mus.).—ZELEDON, Anal. Mus. Nac. Costa Rica, i, 1882, 105 (Monte Redondo, Pozo Azul de Pirris, and Alajuela, Costa Rica).—CHERRIE, Proc. U. S. Nat. Mus., xiv, 1891, 519 (Costa Rica; crit.).—EXPLOR. Zool. Merid. Costa Rica, 1893, 10 (Lagarto, Costa Rica).—ALLEN, Bull. Am. Mus. N. H., xiii, 1900, 179 (Cacagualito, Bonda, and Minca, Santa Marta, Colombia; crit.).—BANGS, Auk, xviii, 1901, 368 (Divala, Chiriqui).

^a Nine specimens.

Specimens from different localities average, respectively, as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Mid- toe.
MALES.					
Four adult males from Nicaragua and Costa Rica	69	48.2	18.7	24	16
Two adult males from Panama	71.2	54.7	19.7	26	18.5
Four adult males from Colombia	70.4	54.6	19.2	25.7	18.5
FEMALES.					
Five adult females from Nicaragua and Costa Rica	68	50.5	18.6	23.4	16.5
One adult female from Panama	71.5	52.5	19.5	25.5	17
Three adult females from Colombia	65.3	48.5	18	22.2	14.5

Thryophilus rufalbus castanonotus HELLMAYR, Verh. k. k. zool.-bot. Gesellsch. Wien, 1901, 769, in text.

Thryothorus rufalbus castanonotus RIDGWAY, Proc. U. S. Nat. Mus., x, sig. 32, Aug. 6,^a 1888, 508 (Angostura, Costa Rica; coll. U. S. Nat. Mus.).

THRYOPHILUS SINALOA SINALOA Baird.

SINALOA WREN.

Adults in spring and summer.—Pileum, hindneck, back, and scap-
ers, plain grayish tawny-brown (between raw-umber and broccoli
wn but much nearer the former); rump and upper tail-coverts
ilar but more rufescent, inclining more or less toward russet; tail
set, rather broadly barred with dusky; wing-coverts similar in
or to back, the greater with very indistinct bars of darker brown,
ne of the middle coverts usually with a small median streak or gut-
e spot of paler (dull whitish or brownish white) margined, in part,
h dusky; remiges cinnamon-brown, narrowly barred with dusky,
; outermost primaries with interspaces much paler (pale wood
ownish); a rather narrow but sharply defined and conspicuous super-
iary stripe of white or buffy white; a narrow postocular stripe of
own, occupying upper portion of auricular region; sides of neck
oadly streaked with white and black, the black streaks narrower
an the white and edged with brown; suborbital, malar, and auricular
gions (except upper portion of latter) white, the last narrowly
reaked with dusky, the first and second usually with very narrow
usky margins to the feathers; under parts dull white, the sides of
est more or less strongly shaded with pale brownish gray, this pass-
g into light brown (similar in hue to color of back but paler) on
les and flanks; under tail-coverts white, broadly barred with black,
e black bars narrowly margined with pale rusty brown; maxilla
orn color with paler tomia; mandible pale horn color (in dried
skins); iris brown;^b legs and feet pale horn color (in dried skins).

Adults in autumn and winter.—Similar to the spring and summer
lumage, but more brightly colored, the general color of upper parts
ore russet or cinnamon-brown, the flanks brighter cinnamon-brown
r tawny-olive.

Young.—Essentially like adults in coloration, but under tail-coverts
ale cinnamon, very indistinctly barred with darker, flanks paler and
more decidedly cinnamon, whitish superciliary and brown postocular
tripes less distinct, sides of neck streaked with brown and white (no
black streaks), and white of under parts more or less obscured by
ndistinct tips or terminal margins of very pale buffy brown.

^a Although intended to be the first publication of the new form, the description
ere cited was not published until nearly six months after the briefer or more gen-
eral one, without synonymy, in Proc. Bost. Soc. Nat. Hist., cited previously.

^b Grayson, manuscript.

(67.5); tail, 46.5-57 (50.1); exposed culmen, 17-20 (18.5); tarsus, 22-25.5 (23.6); middle toe, 14-17 (16.1).^a

Nicaragua (Sucuyá) and Costa Rica (Angostura; San José; San Mateo; Monte Redondo; Alajuela; Bebedero; Volcan de Irazú; Lagarto; Pozo Azul de Pirris; Guaitil; La Palma de Nicoya) to northern Colombia (Cacagualito; Bonda; Obispo; Massinga la Vega; Minca).

Thryothorus rufalbus (not of Lafresnaye) SCLATER, Proc. Zool. Soc. Lond., 1864, 140 (David, Chiriqui); Cat. Am. Birds, 1862, 20, part (Santa Marta, Colombia).—CABANIS, Journ. für Orn., 1860, 408 (Costa Rica).—LAWRENCE, Ann. Lyc. N. Y., viii, 1863, 5 (Panama R. R.), 175 (David, Chiriqui).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 345 (Panama R. R.).—FRANTZ, Journ. für Orn., 1869, 291 (San José, Costa Rica).—SALVIN, Proc. Zool. Soc. Lond., 1870, 181 (Chitra, Castillo, and Calovevora, Veragua).

[*Thryothorus*] *rufalbus* BAIRD, Review Am. Birds, 1864, 122 (diagnosis).

Thryophilus rufalbus, var. *rufalbus* BAIRD, Review Am. Birds, Aug., 1864, 128, part (Panama R. R.; Costa Rica).

Thryophilus rufalbus LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 92 (San Mateo, Costa Rica).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 82, part (San José, Volcan de Irazú, San Mateo, and Bebedero, Costa Rica; David, Boquete de Chitra, Castillo, and Calovevora, Veragua; Panama R. R.; Obispo, Colombia).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 212, part (Paraiso station, Panama R. R.; Calobre, Veragua; Costa Rica).—ZELEDON, Cat. Aves de Costa Rica, 1882, 3; Proc. U. S. Nat. Mus., viii, 1885, 105 (Costa Rica).—NUTTING, Proc. U. S. Nat. Mus., v, 1882, 390 (La Palma de Nicoya, Costa Rica; habits; song); vi, 1883, 381 (Sucuyá, Nicaragua; habits; song).

[*Thryophilus*] *rufalbus* SCLATER and SALVIN, Nom. Av., Neotr., 1873, 6, part.

[*Troglodytes*] *rufalbus* GRAY, Hand-list, i, 1869, 190, no. 2593.

Thryophilus rufalbus rufalbus GOODE, Bull. U. S. Nat. Mus., no. 20, 1883, 345.

Thryothorus longirostris (not *Troglodytes longirostris* Vieillot) LAWRENCE, Ann. Lyc. N. Y., vii, 1861, 320 (Panama R. R.).

Thryophilus rufalbus castanonotus RIDGWAY, Proc. Bost. Soc. N. H., xxiii, Mar. 1888, 386, in text (Nicaragua to Colombia; type from Angostura, Costa Rica in coll. U. S. Nat. Mus.).—ZELEDON, Anal. Mus. Nac. Costa Rica, i, 1887, 105 (Monte Redondo, Pozo Azul de Pirris, and Alajuela, Costa Rica).—CHERRIE, Proc. U. S. Nat. Mus., xiv, 1891, 519 (Costa Rica; crit.); Expl. Zool. Merid. Costa Rica, 1893, 10 (Lagarto, Costa Rica).—ALLEN, Bull. Am. Mus. N. H., xiii, 1900, 179 (Cacagualito, Bonda, and Minca, Santa Marta, Colombia; crit.).—BANGS, Auk, xviii, 1901, 368 (Divala, Chiriqui).

^a Nine specimens.

Specimens from different localities average, respectively, as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Four adult males from Nicaragua and Costa Rica	69	48.2	18.7	24	16
Two adult males from Panama	71.2	54.7	19.7	26	16.2
Four adult males from Colombia	70.4	54.6	19.2	23.7	15.9
FEMALES.					
Five adult females from Nicaragua and Costa Rica	68	50.5	18.6	23.4	16.3
One adult female from Panama	71.5	52.5	19.5	25.5	17
Three adult females from Colombia	65.3	48.5	18	22.2	14.5

T[hryophilus] rufalbus castanonotus HELLMAYER, Verh. k. k. zool.-bot. Gesellsch. Wien, 1901, 769, in text.

Thryothorus rufalbus castanonotus RIDGWAY, Proc. U. S. Nat. Mus., x, sig. 32, Aug. 6,^a 1888, 508 (Angostura, Costa Rica; coll. U. S. Nat. Mus.).

THRYOPHILUS SINALOA SINALOA Baird.

SINALOA WREN.

Adults in spring and summer.—Pileum, hindneck, back, and scapulars, plain grayish tawny-brown (between raw-umber and broccoli brown but much nearer the former); rump and upper tail-coverts similar but more rufescent, inclining more or less toward russet; tail russet, rather broadly barred with dusky; wing-coverts similar in color to back, the greater with very indistinct bars of darker brown, some of the middle coverts usually with a small median streak or guttate spot of paler (dull whitish or brownish white) margined, in part, with dusky; remiges cinnamon-brown, narrowly barred with dusky, the outermost primaries with interspaces much paler (pale wood brownish); a rather narrow but sharply defined and conspicuous superciliary stripe of white or buffy white; a narrow postocular stripe of brown, occupying upper portion of auricular region; sides of neck broadly streaked with white and black, the black streaks narrower than the white and edged with brown; suborbital, malar, and auricular regions (except upper portion of latter) white, the last narrowly streaked with dusky, the first and second usually with very narrow dusky margins to the feathers; under parts dull white, the sides of chest more or less strongly shaded with pale brownish gray, this passing into light brown (similar in hue to color of back but paler) on sides and flanks; under tail-coverts white, broadly barred with black, the black bars narrowly margined with pale rusty brown; maxilla horn color with paler tomia; mandible pale horn color (in dried skins); iris brown;^b legs and feet pale horn color (in dried skins).

Adults in autumn and winter.—Similar to the spring and summer plumage, but more brightly colored, the general color of upper parts more russet or cinnamon-brown, the flanks brighter cinnamon-brown or tawny-olive.

Young.—Essentially like adults in coloration, but under tail-coverts pale cinnamon, very indistinctly barred with darker, flanks paler and more decidedly cinnamon, whitish superciliary and brown postocular stripes less distinct, sides of neck streaked with brown and white (no black streaks), and white of under parts more or less obscured by indistinct tips or terminal margins of very pale buffy brown.

^a Although intended to be the first publication of the new form, the description here cited was not published until nearly six months after the briefer or more general one, without synonymy, in Proc. Bost. Soc. Nat. Hist., cited previously.

^b Grayson, manuscript.

Adult male.—Length (skins), 118–137 (129); wing, 57.5–63 (61); tail, 43.5–51 (48.1); exposed culmen, 15.5–18 (16.6); tarsus, 21–23 (21.5); middle toe, 13–16 (14.6).^a

Adult female.—Length (skins), 115–126 (120.5); wing, 54–56 (55.5); tail, 40.5–45 (43.1); exposed culmen, 15.5–16 (15.9); tarsus, 20–21 (20.6); middle toe, 13–15 (13.7).^b

Western Mexico, in States of Sinaloa (Mazatlan; Plomosas), Jalisco (Barranca Ibarra; Itzatlán; San Sebastian; Guadalajara; Las Palmas Tuxpan) and Colima (Manzanillo; plains of Colima), and Territory of Tepic (Tepic; San Blas).

[*Thryothorus*] *sinaloa* BAIRD, Review Am. Birds, Aug., 1864, 122 (diagnosis).
Thryophilus sinaloa BAIRD, Review Am. Birds, Sept., 1864, 130 (Mazatlan, Sinaloa; coll. U. S. Nat. Mus.).—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 268 (Mazatlan, Sinaloa; Colima; habits; descr. nest and eggs).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 83.—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 213.—JOUY, Proc. U. S. Nat. Mus., xvi, 1894, 777 (Barranca Ibarra, Jalisco; habits).

[*Thryophilus*] *sinaloa* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 6.
 [Troglodytes] *sinaloa* GRAY, Hand-list, i, 1869, 190, no. 2598.

THRYOPHILUS SINALOA CINEREUS Brewster.

ASHY WREN.

Similar to *T. s. sinaloa*, but decidedly paler and grayer, the general color of upper parts much nearer to broccoli brown than raw umber. the rump and upper tail-coverts between cinnamon and wood brown, the flanks wood brown or isabella color.^c

Adult male.—Length (skins), 124–131 (130); wing, 59.5–64.5 (61.6); tail, 46–50 (48.3); exposed culmen, 16–17.5 (16.6); tarsus, 21–22.5 (21.7); middle toe, 13.5–15 (14).^d

Adult female.—Length (skin), 119.5; wing, 57; tail, 42.5; exposed culmen, 15; tarsus, 21.5; middle toe, 14.^e

Northwestern Mexico, in States of Sonora (Alamos; Ysleta), Chihuahua (Hacienda de San Rafael; Durasno; Batopilas), and Durango (Chacala).

Thryophilus sinaloa cinereus BREWSTER, Descr. Sup. New Species Birds W. N. Am. and Mex., Jan. 31, 1889, 96; Auk, vi, Apr., 1889, 96 (Alamos, Sonora, Mexico; coll. W. Brewster).

^a Ten specimens.

^b Four specimens.

^c Several of the specimens examined show more or less speckling of dusky on the lower abdomen, a feature which I find in only one example of a much larger series of *T. s. sinaloa*, and in that indicated but slightly. Two of the supposed characters of *T. s. cinereus* mentioned in the original description, stouter bill and grayer under parts, I am unable to verify.

^d Seven specimens.

^e One specimen.

THRYOPHILUS SINALOA RUSSEUS Nelson.

RUSSET WREN.

Similar to *T. s. sinaloa*, but coloration decidedly darker and richer, the back, etc., deep russet-brown, upper tail-coverts cinnamon-rufous or light chestnut, flanks between isabella color and raw-umber.

Adult male.—Length (skins), 133–137 (135); wing, 62–64 (63.2); tail, 49–51 (50); exposed culmen, 16–16.5 (16.3); tarsus, 22–22.5 (22.3); middle toe, 14–14.5 (14.3).^a

Adult female.—Length (skins), 124–130 (127); wing, 55.5; tail, 41.5–42.5 (42); exposed culmen, 15.5–17 (16.2); tarsus, 20.5–21.5 (21); middle toe, 13–14.5 (13.7).^b

Southwestern Mexico, in State of Guerrero (Acahuitzotla).

Thryophilus sinaloa russeus NELSON, Proc. Biol. Soc. Wash., xvi, Nov. 30, 1903, 157 (Acahuitzotla, Guerrero; coll. U. S. Nat. Mus.).

THRYOPHILUS GALBRAITHII GALBRAITHII (Lawrence).

GALBRAITH'S WREN.

Adults (sexes alike).—Pileum, hindneck, back, scapulars, rump, and upper tail-coverts plain brown (nearest raw-umber) duller (between raw-umber and broccoli brown) on pileum, brighter (nearly russet) on rump and upper tail-coverts; tail clear russet broadly barred with black; wings intermediate in color between color of back and tail, distinctly barred with black, the greater coverts more narrowly and less distinctly barred, the middle and lesser coverts plain brown, or the former with very narrow and indistinct bars or faint indications of bars; a rather narrow but distinct superciliary stripe of white; a rather narrow but distinct postocular stripe of grayish brown (broccoli), occupying upper portion of auricular region; lores, suborbital region, and auricular region (except upper portion) dull white, the last sometimes narrowly and indistinctly streaked with grayish brown; malar region, chin, and upper throat (sometimes whole throat) white or buffy white; chest and breast light ochraceous-buff (sometimes decidedly paler, in worn plumage approaching buffy white), deepening on sides, flanks, lower abdomen, anal region, and under tail-coverts into deep tawny-buff or tawny-ochraceous, the under tail-coverts without trace of bars or other markings;^c maxilla dusky horn color with paler tomia; mandible pale grayish horn color (in dried skins); legs and feet dusky brown or blackish (in dried skins).

Young.—Very similar in coloration to adults, but bars on wings and tail duller black or dusky, brown postocular streak and white

^a Three specimens.

^b Two specimens.

^c In one young example I find a single dusky spot near tip of the two longest coverts.

superciliary stripe narrower, and sides of head and chest faintly suffused with grayish brown.

Adult male.—Length (skins), 123–137 (129); wing, 60.5–67 (64.4); tail, 42–47 (44.2); exposed culmen, 17–19 (17.9); tarsus, 23–25 (24.4); middle toe, 14–16.5 (15.4).^a

Adult female.—Length (skins), 118–125 (121.8); wing, 60.5–64 (61.7); tail, 40.5–44 (42); exposed culmen, 15.5–19 (17.4); tarsus, 23.5–25.5 (24.1); middle toe, 13.5–16 (15.2).^b

Northern Colombia (Cartagena; Turbo), including Isthmus of Panama (Panama; Lion Hill Station; Paraiso Station).

Thryothorus [undetermined] CASSIN, Proc. Ac. Nat. Sci. Phila., xii, 1860, 193 (Turbo and Cartagena, Colombia).

Thryothorus albipectus (not of Cabanis) SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 345 (Panama R. R.).

Thryothorus galbraithii LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., vii, 1861, 320 (Lion Hill, Panama R. R.; coll. G. N. Lawrence).

[*Thryothorus*] *galbraithii* BAIRD, Review Am. Birds, 1864, 123 (diagnosis).

Thryophilus galbraithii BAIRD, Review Am. Birds, Sept., 1864, 131 (Turbo and Cartagena, Colombia; Panama R. R.).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 208 (Paraiso Station and Panama, Panama R. R.).—BANGS, Proc. New Engl. Zool. Club, ii, 1900, 27 (Loma del Leon, Panama R. R.)

[*Troglodytes*] *galbraithii* GRAY, Hand-list, i, 1869, 190, no. 2595.

Thryophilus albipectus galbraithii HELLMAYR, Verh. k. k. zool.-bot. Gesellsch. Wien, 1901, 744 (synonymy; crit.).

[*Thryophilus*] *leucotis* (not *Thryothorus leucotis* Lafresnaye) SCLATER and SALVIN, Nom. Av. Neotr., 1873, 6, part (Panama).

Thryophilus leucotis SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 85, part.—OBERHOLSER, Proc. U. S. Nat. Mus., xxv, 1902, 67 (crit.).

THRYOPHILUS GALBRAITHII CONDITUS Bangs.

SAN MIGUEL WREN.

Similar to *T. l. leucotis*, but slightly larger (except length of tail) and slightly deeper colored.

Adult male.—Length (skins), 122–131 (125); wing, 65.5–68.5 (66.5); tail, 42–44.5 (43.3); exposed culmen, 17.5–19 (18.3); tarsus, 25–25.5 (25.2); middle toe, 15–16.5 (16).^c

Adult female.—Length (skins), 123–127 (125); wing, 61–64 (62.4); tail, 41–44.5 (42.1); exposed culmen, 17–18 (17.5); tarsus, 23.5–24.5 (24); middle toe, 15–16 (15.6).^d

San Miguel Island, Gulf of Panama.

Thryophilus galbraithii (not *Thryothorus galbraithii* Lawrence) BANGS, Auk, xviii, 1901, 30 (San Miguel I., Gulf of Panama; crit.).

Thryophilus galbraithii conditus BANGS, Proc. New Engl. Zool. Club, iv, Mar. 16, 1903, 3 (San Miguel I., Gulf of Panama; coll. E. A. and O. Bangs).

^a Eight specimens.

^b Five specimens.

^c Three specimens.

^d Four specimens.

THRYPHILUS MODESTUS MODESTUS (Cabanis).

CABANIS' WREN.

Adults in spring and summer.—Pileum and hindneck plain dark brownish gray or grayish brown (between dark mouse gray and dark hair brown); back and scapular plain olive-brown, passing into russet-brown on rump and upper tail-coverts; tail russet or cinnamon-brown, more or less distinctly, and more or less broadly^a barred with dusky; wings similar in color to back and scapulars, the remiges (at least the secondaries) indistinctly barred with dusky (the bars sometimes obsolete); a rather narrow but very distinct superciliary stripe of white; a narrow postocular stripe of dusky brownish gray, occupying upper portion of auricular region; a loreal streak of dusky gray; suborbital region and auricular region (except upper portion) dull white, the latter usually narrowly streaked (more or less distinctly) with grayish dusky; malar region, chin, throat, chest, breast, and upper abdomen white; sides of chest more or less strongly washed with brownish gray or grayish brown, this passing posteriorly into buffy cinnamon on sides, flanks, and under tail-coverts, the latter without bars or other markings; abdomen usually more or less tinged with buff; maxilla dusky horn color or blackish, with paler tomia; mandible pale grayish in dried skins, bluish gray in life; iris chestnut,^b hazel,^b or chocolate;^c legs and feet bluish slate, with soles of toes yellow^b in life, dusky horn color in dried skins.

Adults in autumn and winter.—Similar to the spring and summer plumage, but pileum and hindneck browner, sometimes almost concolor with back.

Young.—Similar in coloration to adults, but brown of upper parts slightly duller, fulvous of flanks and under tail-coverts paler and duller, white of under parts duller, and white superciliary and dusky postocular stripes less distinct; iris slate-gray.

Adult male.—Length (skins), 129–145 (135); wing, 58–61 (59.6); tail, 52–56 (53.6); exposed culmen, 15.5–18 (16.7); tarsus, 23.5–24 (23.8); middle toe, 15.^d

Adult female.—Length (skins), 114–126 (122.6); wing, 51.5–58 (55.3); tail, 48–52 (50.4); exposed culmen, 14.5–16 (15.4); tarsus, 22–23.5 (22.6); middle toe, 14–15 (14.3).^e

^a There is a great amount of individual variation in the distinctness of the barring on the tail, as well as in the relative width of the dusky bars, which are sometimes nearly obsolete on the middle rectrices.

^b Cherrie, manuscript.

^c Zeledon, manuscript.

^d Nine specimens, from Costa Rica.

^e Eight specimens, from Costa Rica.

Costa Rica (San José; San Mateo; Alajuela; Volcan de Irazú; Guatú; Palmar; Lagarto; Boruca; Térraba; Navarro de Cartago; Cervantes de Cartago; Pozo Azul de Pirris; Buenos Aires) and Nicaragua.

Thryothorus modestus CABANIS, Journ. für Orn., viii, Nov., 1860, 409 (San José, Costa Rica; coll. Berlin Mus.)—SCLATER, Cat. Am. Birds, 1862, Suppl., I, 129 (San José).

[*Thryothorus*] *modestus* BAIRD, Review Am. Birds, 1864, 122 (diagnosis).

Tiryophilus modestus BAIRD, Review Am. Birds, Sept., 1864, 131, part (San José, Costa Rica).—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 92 (San José, Guatú, and San Mateo, Costa Rica).—FRANTZIUS, Journ. für Orn., 1869, 291 (San José, Costa Rica).—BOUCARD, Proc. Zool. Soc. Lond., 1878, 51 (San José, Cartago, and San Mateo, Costa Rica).—SALVIN and GODMAN, Biol. Centr. Am., Aves, i, 1880, 83, part (Costa Rican localities and references).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 209, part (San José, Costa Rica).—ZELEDON, Cat. Aves de Costa Rica, 1882, 3; Proc. U. S. Nat. Mus., vii, 1885, 105 (Costa Rica); Anal. Mus. Nac. Costa Rica, i, 1887, 105 (Alajuela, San José, Navarro de Cartago, Cervantes de Cartago, and Pozo Azul de Pirris, Costa Rica).—NUTTING, Proc. U. S. Nat. Mus., v, 1883, 494 (Volcan de Irazú, Costa Rica), 499 (San José, Costa Rica; song).—CHERRIE, Proc. U. S. Nat. Mus., xiv, 1891, 520 (Costa Rica; crit.); Auk, viii, 1891, 275 (San José, Costa Rica; habits; song; descr. young); Expl. Zool. Merid. Costa Rica, 1893, 10 (Palmar, Lagarto, Boruca, Térraba, and Buenos Aires, s. c. Costa Rica, 25 to 300 m. alt.).

[*Tiryophilus*] *modestus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 6, part.

[*Troglodytes*] *modestus* GRAY, Hand-list, i, 1869, 190, no. 2594.

[*Thryophilus*] *modestus* RIDGWAY, Proc. U. S. Nat. Mus., i, 1878, 253 (diagnosis).

THRYOPHILUS MODESTUS ELUTUS Bangs.

PANAMA WREN.

Similar to *T. m. modestus*, but slightly duller and paler in color; wing and bill averaging longer, tail shorter.^a

Adult male.—Length (skins), 126–137 (132); wing, 58.5–65 (61.4); tail, 46–54.5 (50); exposed culmen, 17–18.5 (17.7); tarsus, 22–25 (23.8); middle toe, 13.5–14.5 (14.2).^b

Adult female.—Length (skins), 122–129.5 (124.6); wing, 55–58 (56.2); tail, 44.5–45.5 (45); exposed culmen, 15.5–16.5 (16); tarsus, 23–24 (23.5); middle toe, 13.5–14.5 (14).^c

Isthmus of Panama, from line of Panama Railroad (Lion Hill Station) north to Chiriqui (Boquete; Pedregal; Divala) and Veragua (Bugaba).

Thryothorus leucotis (not of Lafresnaye) LAWRENCE, Ann. Lyc. N. Y., vii, 1862, 320 (Panama R. R.).

^a Mr. Bangs mentions the "rather smaller" size as one of the characters of this form; but I find that, taking the average of nine adult males of each, only the length of the tail and middle toe is less than in *T. m. modestus*, all other measurements except that of tarsus, being greater.

^b Nine specimens.

^c Three specimens.

Thryothorus modestus (not of Cabanis) LAWRENCE, Ann. Lyc. N. Y., viii, 1863, 5, 483 (Panama R. R.).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 346 (Panama R. R.).—SALVIN, Proc. Zool. Soc. Lond., 1870, 181 (Bugaba, Veragua).

Thryophilus modestus BAIRD, Review Am. Birds, 1864, 131, part (Panama R. R.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 83, part (Panama; Bugaba, Veragua).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 209, part (in synonymy).—BANGS, Proc. New Engl. Zool. Club, ii, 1900, 27 (Loma del Leon, Panama R. R.); Auk, xviii, 1901, 368 (Divala, Chiriqui).

[*Thryophilus*] *modestus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 6, part.

Thryophilus modestus elutus BANGS, Proc. New Engl. Zool. Club, iii, Jan. 30, 1902, 51 (Loma del Leon, Panama R. R.; coll. E. A. and O. Bangs).

THRYOPHILUS MODESTUS PULLUS Ridgway.

CHIAPAS WREN.

Similar to *T. m. modestus*, but more deeply colored, with middle rectrices less distinctly barred;^a wing and tail averaging shorter, bill longer.

Adult male.—Length (skins), 131–138 (136); wing, 56–60 (57.6); tail, 50–56 (53); exposed culmen, 16–18 (17); tarsus, 23–24 (23.4); middle toe, 14–15 (14.8).^b

Adult female.—Length (skins), 125–130 (128); wings, 53–56 (54.3); tail, 46–50 (48.3); exposed culmen, 16; tarsus, 23; middle toe, 14.^c

Extreme southwestern Mexico, in State of Chiapas (Chicharras; Yahalon; Tuxtla; Huehuetan; Tumbala); western Guatemala (Coban; Dueñas; Volcan de Fuego; Savana Grande; Escuintla; Jacaltenango); Honduras (San Pedro; San Pedro Sula)?^d

Thryothorus felix? (not *Thryothorus felix* Sclater) SALVIN and SCLATER, Ibis, 1860, 397 (Escuintla, Guatemala).

Thryothorus albipectus (not of Cabanis) SCLATER, Cat. Am. Birds, 1862, 20, part (Escuintla, Guatemala).

Thryophilus modestus (not *Thryothorus modestus* Cabanis) BAIRD, Review Am. Birds, 1864, 131, part (Dueñas, Guatemala).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 83, part (Volcan de Fuego, Dueñas, Savana Grande, and Escuintla, Guatemala; San Pedro, Honduras?).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 209, part (Vera Paz, Guatemala).

[*Thryophilus*] *modestus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 6, part (Guatemala).

^a In some specimens of *T. m. modestus* the middle rectrices are as indistinctly barred as in the present form; but the individual variation with respect to this character in the typical form is very considerable, whereas in the present one the nine specimens are practically alike. The form is not a very strongly characterized one, but the differences, though slight, are apparently constant, and on the whole are at least as great as in the case of the Panama form (*T. m. elutus*), which represents the opposite extreme as to coloration.

^b Five specimens.

^c Three specimens.

^d The single specimen from Honduras (San Pedro Sula) is in such badly worn and faded plumage that its positive identification with either form is impracticable.

Thryothorus modestus (not of Cabanis) SALVIN, Ibis, 1866, 205 (Coban, Guatemala).—SCLATER and SALVIN Proc. Zool. Soc. Lond., 1870, 836 (San Pedro Honduras).

Thryophilus modestus pullus RIDGWAY, Proc. Biol. Soc. Wash., xvi, Nov. 30, 1903, 167 (Huehuetan, Chiapas; coll. U. S. Nat. Mus.).

THRYOPHILUS ZELEDONI Ridgway.

ZELEDON'S WREN.

Most like *T. modestus*, but decidedly larger, with relatively larger bill and feet and shorter tail; coloration much grayer above, the flanks, etc., light olive-brown instead of fulvous.

Adults (sexes alike).—Pileum and hindneck plain dark brownish gray (dark mouse gray to olivaceous hair brown) changing gradually on back and scapulars into olive, the rump and upper tail-coverts similar but slightly lighter and inclining very slightly toward raw-umber; tail light grayish brown (prouts brown to hair brown) broadly barred with dull black; wings same color as back, the remiges narrowly and indistinctly barred with dusky, the greater coverts sometimes showing traces of faint bars; a rather narrow but sharply defined and conspicuous superciliary stripe of white; a narrow postocular stripe of dark brownish gray, occupying upper portion of auricular region; a loreal streak of dusky gray; suborbital, malar, and auricular regions (except upper portion of latter) white, narrowly streaked (more or less) with grayish dusky; chin, throat, and median under parts of body white, the chest more or less strongly shaded with gray, at least laterally; sides, flanks, and under tail-coverts light buffy olive or olivaceous wood brown, the last without bars or other markings; under wing-coverts white; maxilla blackish, with paler tomia; mandible pale grayish (pale bluish gray in life?); legs and feet dusky or horn color (bluish gray in life?).

Adult male.—Length (skins), 132–148 (141); wing, 64–68 (65.4); tail, 50–54 (52.6); exposed culmen, 19–21 (20); tarsus, 25–27 (26); middle toe, 16–18 (17).^a

Adult female.—Length (skins), 132–134 (133); wing, 60–63 (61.5); tail, 47–48 (47.5); exposed culmen, 19; tarsus, 25; middle toe, 17.^b

Atlantic lowlands of Costa Rica (Pacuare, Talamanca) and Nicaragua (Greytown; Los Sábalos).

Thryophilus zeledoni RIDGWAY, Proc. U. S. Nat. Mus., i, Dec. 10, 1878, 252 (Talamanca, e. Costa Rica; coll. U. S. Nat. Mus.; ex Lawrence MS.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 84.—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 210.—ZELEDON, Cat. Aves de Costa Rica, 1882, 3; Proc. U. S. Nat. Mus., viii, 1885, 105 (Costa Rica); Anal. Mus. Nac. Costa Rica, i, 1887, 105 (Pacuare, Costa Rica).—NUTTING, Proc. U. S. Nat. Mus., vi, 1884, 396 (Los Sábalos, Nicaragua).—CHERRIE, Proc. U. S. Nat. Mus., xiv, 1891, 520 (Costa Rica; crit.).—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 483 (Greytown, Nicaragua).

^a Five specimens.

^b Two specimens.

Genus *SALPINCTES* Cabanis.

Salpinctes CABANIS, in Wiegmann's Archiv. für Naturg., 1847 (i), 323. (Type, *Troglodytes obsoletus* Say.)

Medium-sized Troglodytidae with inner toe (without claw) not reaching to penultimate joint of middle toe, planta tarsi more or less divided into segments (at least on inner side), the under parts mostly whitish sometimes speckled or barred with dusky, and tail with a subterminal band (interrupted by middle rectrices) of pale cinnamon.

Bill shorter than head (sometimes nearly as long), slender, straight except extreme tip; exposed culmen shorter than tarsus but longer than middle toe without claw, straight, or very nearly so, to near tip, where gradually but decidedly decurved; gonys decidedly shorter than distance from nostril to tip of maxilla, straight or very faintly concave terminally; maxillary tomium with slight subterminal notch or indication of one. Nostril longitudinal, guttate (the pointed end anterior), overhung by a distinct though rather narrow corneous excurrent operculum, its posterior end in contact with latero-frontal feathers. Rictal bristles obsolete. Wing rather long, moderately rounded; eighth, seventh, and sixth primaries longest, ninth about equal to third and about twice as long as tenth. Tail nearly three-fourths as long as wing, slightly rounded, the rectrices very broad. Tarsus equal to or longer than exposed culmen, more than one-fourth as long as wing, slender, the acrotarsium distinctly scutellate, the planta tarsi more or less divided into segments, especially on inner side;^a middle toe, with claw, decidedly shorter than tarsus; lateral toes of very unequal length, the inner (without claw) not reaching to middle (subterminal) joint of middle toe, the outer scarcely reaching to beyond this joint, its claw falling decidedly short of base of middle claw; hallux remarkably slender (no thicker than anterior toes), its length (without claw) about equal to that of outer toe (without claw); basal phalanx of middle toe adherent for entire length to outer toe, for more than half its length to inner toe.

Coloration.—Above light grayish brown or brownish gray, becoming cinnamomeous on rump, more or less speckled or dotted with dusky and whitish; tail with a mottled terminal band, preceded by one of pale cinnamon, this by one of black, these all (except the first) interrupted by the median rectrices; under parts whitish, sometimes streaked, speckled, or barred with dusky.

Range.—Western United States and southward through higher districts of Mexico and Central America to northern Costa Rica. (Four species?)

^aThese are sometimes (in very old birds?) obsolete for the upper half or more.

KEY TO THE SPECIES AND SUBSPECIES OF SALPINCTES

- a. Under parts only partially, if at all, streaked, spotted, or barred.
 - b. Throat and chest more or less streaked (the streaks sometimes nearly obsolete); upper parts with whitish specks or dots, at least on lower back and posterior scapulars. (Adults.)
 - c. Wing relatively longer, bill shorter (wing more than three and a half times as long as exposed culmen, averaging 69 or more in male, more than 65 in female; exposed culmen averaging less than 20 in male, less than 19 in female); coloration paler.
 - d. Bill more slender. (Continental forms.)
 - e. Larger (male averaging, wing 71.3, tail 53.9, exposed culmen 17.8, tarsus 21.2, middle toe 13.7; female, wing 69.4, tail 52.2, exposed culmen 17.5, tarsus 20.7, middle toe 13.4); coloration slightly paler. (Western United States, and north to British Columbia, south to central Mexico.)
Salpinctes obsoletus obsoletus, adults (p. 645)
 - ee. Smaller, with larger bill and feet (male averaging, wing 70.8, tail 50.2, exposed culmen 18.2, tarsus 21.5, middle toe 14.2; female, wing 68.8, tail 48.7, exposed culmen 17.8, tarsus 20.3, middle toe 14); coloration slightly darker. (Southern Mexico.)
Salpinctes obsoletus notius, adults (p. 646)
 - dd. Bill stouter. (Island forms.)
 - e. Paler, the general color of upper parts light buffy brown; male, wing 71, tail 51, exposed culmen 20, tarsus 21.5, middle toe 14.5. (San Nicolas Island, California.) *Salpinctes obsoletus pulverius*, adults (p. 645)
 - ee. Darker (coloration much as in *S. o. obsoletus*); male averaging, wing 70.9, tail 55.7, exposed culmen 18.7, tarsus 21.2, middle toe 14.5 (San Benedicto Island, northwestern Mexico.)
Salpinctes obsoletus exsul, adults (p. 650)
 - cc. Wing relatively shorter, bill longer (wing less than three and a half times as long as exposed culmen, averaging 67.2 in male, 65.1 in female; exposed culmen averaging 21 in male, 20.5 in female); coloration darker. (Guadalupe Island, Lower California.)
Salpinctes obsoletus guadeloupensis, adults (p. 650)
- bb. Entire under parts immaculate; upper parts without any whitish dots or specks. (Young.^a)
 - c. Upper parts paler (pale cinnamon-brownish) very faintly, if at all, barred with dusky. *Salpinctes obsoletus obsoletus*, young (p. 645)
 - cc. Upper parts darker (dull grayish brown), distinctly barred with dusky.
Salpinctes obsoletus notius, young^b (p. 646)
Salpinctes obsoletus guadeloupensis, young^b (p. 650)
- aa. Under parts wholly spotted or barred with dusky.
 - b. Abdomen and flanks spotted. (High volcanoes of Salvador; Volcan de Minervalles, Costa Rica?) *Salpinctes guttatus* (p. 653)
 - bb. Abdomen and flanks barred or banded.
 - c. Flanks barred with dark brown or dusky. (Department of Quiché, northern Guatemala.) *Salpinctes maculatus* (p. 651)
 - cc. Flanks and abdomen barred (more densely than in preceding?) with black (Volcan el Viejo, Nicaragua.) *Salpinctes fasciatus* (p. 653)

^aThe young not seen of *S. o. pulverius*, *S. o. exsul*, *S. o. notius*, and the three remaining Central American forms.

^bI have not been able to discover any color differences between the young of these two forms.

SALPINCTES OBSOLETUS OBSOLETUS (Say).

ROCK WREN.

Adults (sexes alike).—Above grayish brown or brownish gray (averaging between hair brown and drab-gray^a), changing on rump to vinaceous-cinnamon, most of the surface marked with small wedge-shaped spots or short streaks of dusky, terminated by a dot or speck of dull whitish;^b middle rectrices grayish brown, barred (more or less distinctly) with dusky; remaining rectrices grayish brown, broadly tipped with cinnamon-buff and crossed by a broad subterminal band of black, the terminal buffy or cinnamomeous band more or less shaded with pale grayish brown and mottled or vermiculated terminally with darker, especially on outermost rectrix, which usually has one or more additional but narrower bands of black and buffy, especially on outer web;^c a rather distinct but not sharply defined superciliary stripe of whitish; a broad postocular stripe of grayish brown, occupying upper portion (sometimes upper half) of auricular region; loreal, suborbital, and malar regions and lower portion of auricular region dull white or brownish white, more or less mottled, streaked, or squamated with grayish brown; under parts dull white, passing into pale cinnamon-buff or pinkish vinaceous-buff on flanks, the anal region and under tail-coverts more or less strongly tinged with the same; throat and chest (sometimes breast also) usually more or less streaked with grayish brown or dusky;^d under tail-coverts transversely spotted or barred with dusky; maxilla dark horn color, with paler tomia; mandible pale (pinkish gray or dull lilaceous in life), becoming more or less extensively dusky terminally; iris brown; legs and feet black or blackish brown.

Young.—Similar to adults, but upper parts faintly and narrowly barred or vermiculated (instead of streaked) with dusky, and lacking any whitish dots or specks; cinnamomeous color of rump immaculate; under parts immaculate, the white purer.

Adult male.—Length (skins), 133.5–154 (140.1); wing, 68–75 (71.3); tail, 50.5–59 (53.9); exposed culmen, 15.5–19.5 (17.8); tarsus, 18.5–23 (21.2); middle toe, 12.5–14.5 (13.7).^e

^aThe color is usually browner in worn summer plumage, grayer in fresh autumn and winter plumage; but the variation is not entirely seasonal. The brownest specimens are broccoli brown or drab.

^bThese markings most distinct on pileum, lower back, and hinder scapulars, often entirely wanting on the hindneck, and frequently obsolete elsewhere (at least the whitish dots), except on lower back, etc.

^cSometimes the outer web is barred for its entire length.

^dI am unable, from examination of specimens, to discover any correlation in the conspicuous variations in markings of the under parts in this subspecies with sex, locality, or season.

^eNineteen specimens (none from islands nor Lower California).

Adult female.—Length (skins), 128.5–142.5 (135.8); wing, 67.2 (69.4); tail, 48.5–57.5 (52.2); exposed culmen, 16–19 (17.5); tarsus, 19–21.5 (20.7); middle toe, 12.5–14.5 (13.4).^a

Western United States, northern and central Mexico, and parts of British Columbia; north to British Columbia (Vancouver Island: Burrard Inlet;^a Chilliwack;^b Ashcroft), northern Idaho (Fort Sherman), and Montana (Fort Shaw; Fort Keogh); eastward across Great Plains to eastern Nebraska (Dakota County), southern Iowa (Decatur County)¹, western Kansas (Rooks and Ellis counties), middle Texas (Bexar and Kendall counties), etc.; south over northern and central Mexico to States of Zacatecas (Hacienda San Juan Capistrano), San Luis Potosi (mountains near Jesus Maria), middle Sonora, etc.; west to Pacific coast, including Farallon Islands, Santa Barbara group (except San Nicolas Island) and Coronados group,^b and peninsula of Lower California.

Troglodytes obsoletus SAY, Long's Exp. Rocky Mts., ii, 1823, 4 (South Platte, Colorado).—AUDUBON, Orn. Biog., iv, 1838, 443, pl. 360; Synopsis, 1839, 73; Birds Am., oct. ed., ii, 1841, 113, pl. 116.—WOODHOUSE, in Rep. Sitgreaves' Expl. Zuffi and Col., 1853, 66 (San Francisco Mts., Arizona).—HEERMANN, Journ. Ac. Nat. Sci. Phila., ii, 1853, 263 (mountains of California); Rep. Pacific R. R. Surv., x, pt. iv, 1859, 41 (California; New Mexico; Texas).—HENRY, Proc. Ac. Nat. Sci. Phila., 1855, 309 (New Mexico).—NEWBERRY, Rep. Pacific R. R. Surv., vi, 1857, 80 (Klamath Lakes and Des Chutes R. Oregon).

^a Eleven specimens (all from mainland).

Specimens from different localities, average, respectively, as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Ten adult males from western Texas to Arizona, Nevada, and northern Sonora.....	71.5	53.5	18.1	20.8	13.7
Nine adult males from California.....	71	54.2	17.5	21.6	13.4
Four adult males from San Benedicto Island (<i>S. o. exsul</i>)....	70.9	55.7	18.7	21.2	14.5
One adult male from Santa Cruz Island.....	74	54.5	18.5	21.5	14.5
Three adult males from San Clemente Island.....	71.2	55.3	18.2	20.7	14.4
FEMALES.					
Ten adult females from western Texas to Arizona, etc.....	69.5	52.4	17.5	20.8	13.7
One adult female from California.....	68.5	50	18	19.5	13.5
One adult female from San Benedicto Island (<i>S. o. exsul</i>)....	68	50	18.5	21	13.5
Four adult females from San Clemente Island.....	68.1	50	17	20.7	13.9
One adult female from Santa Cruz Island.....	69	51	17.5	21	14
One adult female from La Paz, Lower California.....	69.5	51.5	17.5	20	13

The series of island specimens is much too small to permit of satisfactory comparison with mainland examples.

^b Rare or casual at these coastwise localities; more common in southern portion of the interior.

^c Sufficient material from the various islands of these two groups may possibly result in the separation of additional island forms.

- Troglodytes obsoleta* NUTTALL, Man. Orn. U. S. and Can., i, 1832, 435.
- Troglodites obsoletus* ORNITHOLOGICAL COMMITTEE, Journ. Ac. Nat. Sci. Phila., vii, 1837, 193.
- Myiothera obsoleta* BONAPARTE, Am. Orn., i, 1825, 6, pl. 1, fig. 2; Ann. Lyc. N. Y., ii, 1826, 73.—TOWNSEND, Journ. Ac. Nat. Sci. Phila., 1839, 154.
- Thryothorus obsoletus* BONAPARTE, Geog. and Comp. List, 1838, 11; Rev. Zool., ii, 1839, 98.
- Salpinctes obsoletus* CABANIS, in Wiegmann's Archiv. für Naturg., 1847 (i), 323.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 357; Cat. N. Am. Birds, 1859, 264; Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 13 (El Paso, Texas; Patos, Coahuila, Mexico); Review Am. Birds, 1864, 110.—SCLATER, Cat. Am. Birds, 1862, 18 ("Missouri").—HAYDEN, Trans. Am. Philos. Soc., xii, 1862, 163 (Bad Lands, Missouri R., etc.).—COUES, Ibis, 1865, 164 (Arizona); Proc. Ac. Nat. Sci. Phila., 1866, 77 (Fort Whipple, Arizona); 1868, 83 (Arizona); Check List, 1873, no. 45; 2d ed., 1882, no. 65; Birds N. W., 1874, 27; Birds Col. Val., 1878, 159.—BUTCHER, Proc. Ac. Nat. Sci. Phila., 1868, 149 (Laredo, Texas).—BROWN, Ibis, 1868, 421 (Vancouver I.).—COOPER, Am. Nat., iii, 1869, 73, 183, 297 (upper Missouri R.); Orn. Cal., 1870, 64; Proc. Cal. Acad. Sci., 1870, 75 (Colorado R., California).—ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 148 (near Denver, Colorado), 161 (Mount Lincoln, Colorado), 166 (Ogden, Utah); Proc. Bost. Soc. N. H., xvii, 1874, 50 (Big Muddy and Bad Lands of Yellowstone, Montana; Little Missouri R., w. North Dakota).—HOLDEN, Proc. Bost. Soc. N. H., xv, 1872, 195 (Sherman, Wyoming; habits).—TRIPPE, Proc. Bost. Soc., xv, 1872, 236 (Decatur Co., Iowa, Oct.; several); in Coues' Birds N. W., 1874, 230 (Colorado, up to 12,000 ft.; habits, etc.).—MERRIAM, Sixth Ann. Rep. U. S. Geol. Surv., 1873, 673 (Ogden, Utah; habits).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 135, pl. 8, fig. 3; iii, 1874, 503 (Decatur Co., s. Iowa).—YARROW and HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 8 (Gunnison, Toquerville, etc., Utah).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 100 (New Mexico; Arizona), 155 (Arizona); Zool. Expl. W. 100th Merid., 1875, 179 (localities in Utah, Colorado, New Mexico, and Arizona; habits; descr. nest).—RIDGWAY, Orn. 40th Parallel, 1877, 418 (localities in Nevada and Utah; habits); Nom. N. Am. Birds, 1881, no. 58.—SNOW, Observer of Nature, iii, 1876 (Rooks Co., w. Kansas, July 5; Ellis Co., w. Kansas, Sept. 23).—BENDIRE, Proc. Bost. Soc. N. H., 1877, 112 (Camp Harney, e. Oregon; descr. nest and eggs).—BELDING, Proc. U. S. Nat. Mus., i, 1879, 402 (Calaveras Co., California, resident); v, 1883, 535 (La Paz, etc., Lower California, winter); (?) vi, 1883, 343 (Guaymas, Sonora).—MINOT, Bull. Nutt. Orn. Club, v, 1880, 225 (Boulder Co., Colorado, up to 10,000 ft.; habits; notes).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 71, part (Coahuila; Lower California; United States; British Columbia).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 266.—BROWN (N. C.), Bull. Nutt. Orn. Club, vii, 1882, 35 (Boerne, Kendall Co., Texas, 1 spec., Mar. 4).—AGERSBERG, Auk, ii, 1885, 277 (Dakota Co., Nebraska).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 715.—EVERMANN, Auk, iii, 1886, 185 (Ventura Co., California; resident?).—EMERSON, Bull. 7, Cal. Ac. Sci., 1887, 430 (Poway, San Diego Co., California).—TOWNSEND (C. H.), Proc. U. S. Nat. Mus., x, 1887, 226 (Mount Shasta, etc., n. California; habits); xiii, 1890, 141 (Santa Cruz I.).—BRYANT (W. E.), Proc. Cal. Ac. Sci., 2d ser., i, 1888, 49 (Farallon I., California; descr. nest and eggs; measurements).—COOKE, Bird Migr. Miss. Val., 1888, 270 (Decatur Co., Iowa; Kansas City, Missouri?; San Angelo, Texas, Sept. 10 to May 10); Bull. 37, Col. State Agric. Coll., 1897, 120 (breeding from plains to 12,000 ft.).—CHAPMAN, Bull. Am. Mus. N. H., iii, 1890, 152

- (Ashcroft, British Columbia, breeding; crit.).—GOSS, Hist. Birds Kansas, 1891, 606 (w. and mid. Kansas).—FANNIN, Check List Birds Brit. Col., 1891, 42 (Burrards Inlet, 1 spec.; common in interior).—LAWRENCE (R. H.), Auk, ix, 1892, 47 (Wishkah R. and East Humptulips R., Washington, June), 357 (Seattle, Washington, 1 spec., Nov. 15).—ATTWATER, Auk, ix, 1892, 342 (San Antonio, Texas, rare summer resident).—ANTHONY, Auk, x, 1893, 87 (near Portland, Oregon, 1 spec., May 21, 1885); ZOE, iv, 1893, 245 (San Pedro Martir Mts., Lower California, breeding at 8,500 ft.).—NEHRLING, Our Native Birds, etc., i, 1893, 137.—FISHER (A. K.), North Am. Fauna, no. 7, 1893, 132 (localities in California and Nevada).—THORNE, Auk, xii, 1895, 218 (Fort Keogh, Montana, breeding in "bad lands").—GRINNELL, Pub. i, Pasadena Ac. Sci., 1897, 5 (Santa Barbara I.), 20 (San Clemente I.); Pub. ii, 1898, 48 (Los Angeles Co., California, resident); Auk, xv, 1898, 236 (Santa Catalina I., Dec.); Pacific Coast Avifauna, no. 3, 1902, 68.—MERRILL (J. C.), Auk, xv, 1898, 19 (Fort Sherman, Idaho, breeding).—BROOKS, Auk, xvii, 1900, 107 (Chilliwack, British Columbia, 1 spec., Nov., 1889; common in southern interior).—BARLOW, Condor, ii, 1900, 133 (Santa Clara Co., California, breeding).—OBERHOLSER, Proc. U. S. Nat. Mus., xxii, 1900, 233 (San Miguel I., California; crit.).—MAILLIARD, Condor, iii, 1901, 126 (San Benito Co., California, resident).—SILLOWAY, Bull. Univ. Mont., no. 3, Biol. ser., no. 1, 1901, 71 (Selish, Montana).—BREWSTER, Bull. Mus. Comp. Zool., xli, 1902, 199 (La Paz, Lower California, breeding).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 443, plate.—GRINNELL and DAGGETT, Auk, xx, 1903, 33 (Coronados Islands, Lower California).
- Salpinctes obsoletus* STEVENSON, Prelim. Rep. U. S. Geol. Surv. Terr. for 1870 (1871), 464 (Sweetwater R., Wyoming).
- Salpinctes* [typographical error] *obsoletus* MERRIAM, Rep. U. S. Geol. Surv. Terr. for 1872 (1873), 713 (Utah).
- [*Salpinctes*] *obsoletus* BONAPARTE, Conspect. Av., i, 1850, 224.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 6, part.
- [*Salpinctes*] *obsoleta* COUES, Key N. Am. Birds, 1872, 85.
- S*[*alpinctes*] *obsoletus* Henshaw, Orn. Rep. Wheeler's Surv., 1879, 287 (e. slope Sierra Nevada; habits; descr. nest and eggs).—COUES, Key N. Am. Birds, 2d ed., 1884, 275.—RIDGWAY, Man. N. Am. Birds, 1887, 548, part.
- [*Cyphorhinus*] *obsoletus* GRAY, Hand-list, i, 1869, 194, no. 2673.

SALPINCTES OBSOLETUS NOTIUS Ridgway.

MEXICAN ROOK WREN.

Similar to *S. o. obsoletus*, but smaller (except bill and feet); young much darker, with dusky bars or vermiculations much heavier.^a

Adult male.—Length (skins), 127.5–128.5 (127.8); wing, 69–72.5 (70.8); tail, 47.5–52.5 (50.2); exposed culmen, 17.5–18.5 (18.2); tarsus, 21.5; middle toe, 14–14.5 (14.2).^b

Adult female.—Length (skins), 123.5–131.5 (128); wing, 68–70.5 (68.8); tail, 48.5–49 (48.7); exposed culmen, 17.5–18.5 (17.8); tarsus, 20–20.5 (20.3); middle toe, 13.5–14.5 (14).^b

^a Although the coloration of the adults does not differ, that I can see, from that of *S. o. obsoletus* the young are quite as dark as those of *S. o. guadeloupensis*; in fact seem to be quite identical in coloration with the latter.

^b Three specimens.

Southern portion of Mexican plateau, in States of Mexico, Hidalgo (Tula; Real del Monte), Puebla (Esperanza), Oaxaca (Mitla; Cacoprieto; Oaxaca City), Guerrero (Tixtla), Jalisco (Huejuquilla; Guadalajara; Atemajac), Guanajuato, southwestern Durango (Durango City), southern Sonora (Alamos), and Federal District (Tlalpam).

S[alpinctes] obsoletus (not *Troglodytes obsoletus* Say) CABANIS, Mus. Hein., i, 1850, 79 (Mexico).—COUES, Key N. Am. Birds, 2d ed., 1884, 275, part.—RIDGWAY, Man. N. Am. Birds, 1887, 548, part.

Salpinctes obsoletus SCLATER, Proc. Zool. Soc. Lond., 1859, 371 (Oaxaca).—BAIRD, Review Am. Birds, 1864, 110, part (Mexico).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 135, part (Mexico).—COUES, Birds Col. Val., 1878, 159, part.—LAWRENCE, Bull. U. S. Nat. Mus., no. 4, 1876, 13 (Cacoprieto, Oaxaca).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 71, part (Guanajuato; Mexico; Oaxaca).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 266, part (Puebla; Mexico).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 715, part.

[*Salpinctes*] *obsoletus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 6, part.

Salpinctes obsoletus notius RIDGWAY, Proc. Biol. Soc. Wash., xvi, Nov. 30, 1903, 168 (Tlalpam, Federal District, Mexico; coll. U. S. Nat. Mus.).

NOTE.—The name *Troglodytes latifasciatus* Lichtenstein (Preis-Verz. Mex. Vög., 1830, 2^a), has usually been cited as a synonym of *Salpinctes obsoletus*, and if really intended for this species would of course be available for the present form; but the very brief description certainly does not afford sufficient reason for such identification, and therefore, in the absence of any type specimen (which, according to Salvin and Godman, seems to have disappeared), I am unable to discover the slightest excuse for adopting the name in question. In fact, it would have been better had the majority of the new names of this much-cited paper been ignored, as the reward for the author's carelessness.

SALPINCTES OBSOLETUS PULVERIUS Grinnell.

SAN NICOLAS ROCK WREN.

Similar to *S. o. obsoletus*, but with larger and relatively stouter bill and much paler, more buffy coloration (general color of upper parts, in summer plumage, pale buffy broccoli brown or pale grayish wood brown).

Adult male.—Length (skin), 136.5; wing, 71; tail, 51; exposed culmen, 20; tarsus, 21.5; middle toe, 14.5.^b

^a I have not been able to refer to the original paper, but in the reprint in Journ. für Orn., 1863 (p. 57), the name is given as *latifasciatus*, not *latifasciatus*, as usually cited.

^b One specimen, the type. Mr. Grinnell gives average measurements of eight specimens (sexes not separated) as follows (his figures being converted into millimeters):

Length (before skinning?), 152.4; wing, 69.8; tail, 55.1; culmen (exposed?), 18.3; depth of bill at nostril, 4.3; tarsus, 21.6.

San Nicolas Island, Santa Barbara group, California.

Salpinctes obsoletus (not *Troglodytes obsoletus* Say) GRINNELL (J.), Pub. i. Pasadena Ac. Sci., 1897, 10 (San Nicolas I., California; descr. nest and eggs).

Salpinctes obsoletus pulverius GRINNELL (J.), Auk, xv, July, 1898, 238 (San Nicolas I.; California; type now in coll. U. S. Nat. Mus.).—BAILEY (Florence M. Handb. Birds N. U. S., 1902, 443, footnote.

Salpinctes pulverius GRINNELL (J.), Pacific Coast Avifauna, no. 3, June 25, 1904, 68.

SALPINCTES OBSOLETUS EXSUL Ridgway.

SAN BENEDICTO ROCK WREN.

Similar in coloration to *S. o. obsoletus*, but with lateral rectrices more numerous barred with cinnamon-buff (the outermost with one to two distinct buff bands on inner web and three to four on outer); wing averaging shorter, tail longer, bill and feet larger.

Adult male.—Length (skins), 137.5–146 (141.6); wing, 67.5–73 (70.9); tail, 53–62 (55.7); exposed culmen, 18–19 (18.7); tarsus, 20.5–22.5 (21.2); middle toe, 13.5–15.5 (14.5).^a

Adult female.—Length (skin), 144.5; wing, 68; tail, 50; exposed culmen, 18.5; tarsus, 21; middle toe, 13.5.^b

Island of San Benedicto, Revillagigedo group, off northwestern Mexico.

Salpinctes obsoletus (not *Troglodytes obsoletus* Say) TOWNSEND (C. H.), Proc. U. S. Nat. Mus., xiii, 1890, 135 (San Benedicto I., n. w. Mexico).—ANTHONY, Auk, xv, 1898, 315 (San Benedicto I.).

Salpinctes obsoletus exsul RIDGWAY, Proc. Biol. Soc. Wash., xvi, Nov. 30, 1903, 107 (San Benedicto I., n. w. Mexico; coll. U. S. Nat. Mus.).

SALPINCTES OBSOLETUS GUADELOUPENSIS Ridgway.

GUADALUPE ROCK WREN.

Similar to *S. o. obsoletus*, but decidedly darker, wing and tail shorter, bill longer and stouter, and tarsi longer; young with upper parts much darker and more heavily barred or vermiculated.

Adult male.—Length (skins), 130–146 (136); wing, 65–68 (67.2); tail, 47.5–53 (50.2); exposed culmen, 19–22.5 (21); tarsus, 20.5–23 (21.8); middle toe, 12.5–14.5 (13.5).^c

Adult female.—Length (skins), 123–137 (130); wing, 63.5–68 (65.1); tail, 45.5–53 (48.6); exposed culmen, 19–22.5 (20.5); tarsus, 21–22 (21.3); middle toe, 12.5–14 (13.3).^d

Guadalupe Island, Lower California.

Salpinctes obsoletus guadeloupensis RIDGWAY, Bull. U. S. Geol. and Geog. Surv. Terr., ii, no. 2, Apr. 1, 1876, 185 (Guadalupe I., Lower California; coll. U. S. Nat. Mus.).

Salpinctes guadalupensis RIDGWAY, Bull. Nutt. Orn. Club, ii, July, 1877, 60, 61.

Salpinctes obsoletus guadalupensis RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 169, 215, 228; Nom. N. Am. Birds, 1881, no. 58a.

^a Four specimens.

^b One specimen.

^c Ten specimens.

^d Nine specimens.

Salpinctes guadelupensis SHARPE, Cat. Birds Brit. Mus., vi, 1881, 268.

Salpinctes guadeloupensis AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 716.—BRYANT (W. E.), Bull. Cal. Acad. Sci., no. 6, 1887, 308 (habits; measurements; descr. nest and eggs).—TOWNSEND (C. H.), Proc. U. S. Nat. Mus., xiii, 1890, 138 (Guadalupe I.).

S[alpinctes] guadelupensis RIDGWAY, Man. N. Am. Birds, 1887, 548.

SALPINCTES OBSOLETUS NEGLECTUS Nelson.

CHANCOL ROCK WREN.

Similar to *S. o. notius*, but still smaller (except bill and feet), and coloration darker, with under parts usually ^a thickly speckled (not streaked, except on throat) with dusky, and dusky streaks or specks and white dots on upper parts larger, the latter pure white; axillars and under wing-coverts spotted with dusky.

Adult male.—Length (skins), 130.5–145 (136.7); wing, 68–72 (69.1); tail, 48.5–52 (49.7); exposed culmen, 16.5–20.5 (18.1); tarsus, 20.5–22.5 (21.8); middle toe, 13.5–15.5 (14.8).^b

Adult female.—Length (skin), 135; wing, 64; tail, 46.5; tarsus, 21; middle toe, 14.5.^c

Western (also central and southern ?) Guatemala (Hacienda Chancol; Volcan de Santa Maria; Nenton) and adjoining parts of Chiapas (Juquipilas).^d

Salpinctes obsoletus (not *Troglodytes obsoletus* Say) SALVIN and SCLATER, Ibis, 1860, 30 (Guatemala).—COUES, Birds Col. Val., 1878, 159, part (Guatemala).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 71, part (Quezaltenango, Salamá, Rabinal, Quiché, and Jutiapa, ^eGuatemala).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 715, part (Guatemala).

[*Salpinctes*] *obsoletus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 6, part (Guatemala).

S[alpinctes] obsoletus RIDGWAY, Man. N. Am. Birds, 1887, 548, part (Guatemala).

Salpinctes obsoletus neglectus NELSON, Auk, xiv, Jan., 1897, 70 (Hacienda Chancol, 10,000 ft., w. Guatemala; coll. U. S. Nat. Mus.).

SALPINCTES MACULATUS Ridgway. f

SPOTTED ROCK WREN.

Much darker than any of the forms of *S. obsoletus*, with upper parts more coarsely and heavily variegated (even the rump conspicuously spotted with dusky and whitish), and with under parts everywhere thickly spotted or barred with dusky.

^a In six out of seven specimens examined.

^b Five specimens.

^c One specimen.

^d The following localities, cited in the *Biologia Centrali-Americana*, may or may not pertain to this form: Salamá side of Cuesta de Chuacús; Summit of Cuesta de Cachil; Cachil; Quezaltenango; Rabinal; Jutiapa.

^e Possibly *S. maculatus*.

^f Type No. 150904, coll. U. S. Nat. Mus., adult male, Toyabaj, department of Quiché, northern Guatemala, May 7, 1892; Heyde and Lux.

Adult male.—Pileum, hindneck, back, and scapulars deep brownish mouse gray or dark drab-gray, streaked with black and sparsely speckled with white, the white apical specks very minute on pileum, nearly absent from greater part of back, larger on lower back and posterior scapulars; rump dark fawn color, the feathers with conspicuous roundish terminal spots of white and with two or more larger transverse spots of black; upper tail-coverts paler fawn color, broadly barred with black and with a roundish or triangular white terminal spot; middle rectrices grayish brown, rather broadly barred with dusky; other rectrices similar, but dusky bars less distinct, crossed by an interrupted^a subterminal band of cinnamon-buff or deep pinkish buff, this immediately preceded by a broader and continuous but rather irregular band of black; outermost rectrix with an additional black and buff band on inner web, the outer web with four large buff spots; wings vermiculated with grayish brown and dusky, the smaller coverts speckled with black and white; under parts white, the sides and flanks tinged with pale fawn color; throat and chest thickly marked with large spots of dusky, more or less transverse, varying from triangular to transverse diamond-shaped and subrounded; breast, abdomen, and anterior portion of sides thickly marked with similar but smaller and more decidedly transverse spots, the flanks with regular transverse bars of dusky brown; under tail-coverts broadly barred with black; axillars and under wing-coverts broadly barred with dusky; bill horn color, the mandible paler basally; iris "dark black;"^b legs and feet dusky brown; length (skin), 124; wing, 69.5; tail, 48; exposed culmen, 20; tarsus, 20.5; middle toe, 14.5.^c

Adult female.—Similar to the adult male, but under parts more tinged with brownish buff (strongly so on flanks) and the spots and bars more brownish dusky; length (skin), 124.5; wing, 68; tail, 46.5; exposed culmen, 18.5; tarsus, 20.5; middle toe, 14.^d

North-central Guatemala (Toyabaj, department of Quiché).

This very strongly characterized form (as compared with the different forms of *S. obsoletus*) seems, as nearly as I am able to judge from descriptions, to be intermediate in coloration between *S. guttatus* of Salvador and *S. fasciatus* of Nicaragua. Without specimens for comparison, however, I can do no more than describe it, and call attention to the need of very careful study of these Central American rock wrens, which at present seem to involve anomalies in geographic range, while our knowledge of their relationship to one another is extremely unsatisfactory.

Salpinctes maculatus RIDGWAY, Proc. Biol. Soc. Wash., xvi, Nov. 30, 1903, 169 (Toyabaj, department of Quiché, Guatemala; coll. U. S. Nat. Mus.).

^a Each rectrix has the buff of opposite webs separated by a blackish shaft-streak.

^b Heyde and Lux, manuscript.

^c One specimen (the type).

^d One specimen (no. 150905, coll. U. S. Nat. Mus., Toyabaj, Quiché, Guatemala, Mar. 13, 1892; Heyde and Lux).

SALPINCTES GUTTATUS Salvin and Godman.

SALVADOR ROCK WREN.

Allied to *S. obsoletus*, but above slightly darker, whole abdomen distinctly spotted, and bill longer; total length, 139.7; wing, 68.6; tail, 49.5; bill from rictus, 22.9; tarsus, 21.6.^a

Volcan de San Miguel, Salvador, 4,000 feet altitude; Volcan de Conchagua, Salvador?; Volcan de Miravalles, Costa Rica?^b

(?) *Salpinctes obsoletus* (not *Troglodytes obsoletus* Say) SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 71, part (Volcan de Conchagua, Salvador, 4,000 ft.).

Salpinctes guttatus SALVIN and GODMAN, Ibis, sixth ser., iii, Oct., 1891, 609 (Volcan de San Miguel, Salvador, 4,000 ft. alt.; coll. Salvin and Godman).

(?) *Salpinctes guttatus* UNDERWOOD, Ibis, 1896, 433 (Volcan de Miravalles, Costa Rica).^b

SALPINCTES FASCIATUS Salvin and Godman.

NICARAGUAN ROCK WREN.

Similar to the preceding [*S. guttatus*] and body beneath densely but not heavily spotted, the feathers with a single distinct subapical band of black, their base also black; bill long; total length, 139.7; wing, 66; tail, 47; bill from rictus, 25.4; tarsus, 24.1.^c

Volcan el Viejo, Nicaragua, at 6,500 feet altitude.

Salpinctes fasciatus SALVIN and GODMAN, Ibis, sixth ser., iii, Oct., 1891, 610 (Volcan el Viejo, Nicaragua, at 6,500 ft. alt.; coll. Salvin and Godman).

Genus CATHERPES Baird.

Catherpes BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 356. (Type, *Thryothorus mexicanus* Swainson.)

Medium-sized Troglodytidae with inner toe (without claw) reaching to but not beyond penultimate joint of middle toe, tail nearly three times as long as tarsus (the latter less than one-third as long as wing), ninth primary not shorter than secondaries, and tail rufous distantly barred with black.

Bill about as long as head, very slender, very faintly decurved or nearly straight; exposed culmen equal to tarsus or slightly longer, practically straight for most of its length or very gradually (almost inappreciably) decurved for terminal half, the tip, however, decidedly

^a Free translation of the original description, with measurements (in inches and tenths) converted to millimeters.

^b It would be very remarkable should the bird from the Volcan de Miravalles, Costa Rica, be really the same as that from the Volcan de San Miguel in Salvador, especially since the evidently distinct form from the Volcan el Viejo in Nicaragua (*S. fasciatus*) comes between. I strongly suspect the distinctness of the Costa Rican birds, and suggest the desirability of careful reexamination and comparison.

^c Free translation of the original description, with measurements (in inches and tenths) converted into millimeters.

decurved; maxillary tomium faintly concave, more decidedly so terminally, where without trace of notch; gonys much shorter than distance from nostril to tip of maxilla, straight or almost inappreciably concave terminally; depth of bill at frontal antiae less than its width at same point. Nostril longitudinal, linear, with a distinct corneous excurrent operculum, its posterior end nearly or quite in contact with latero-frontal feathering. Rictal bristles obsolete. Wing moderate or rather long; seventh and sixth primaries longest, the eighth and fifth but little shorter; ninth about equal to first and nearly twice as long as tenth. Tail about six-sevenths as long as wing, nearly three times as long as tarsus, slightly rounded, or nearly even with lateral pair of rectrices considerably shorter than the rest. Tarsus decidedly longer than middle toe with claw, the acrotarsium distinctly scutellate, the planta tarsi sometimes with several divisions, obvious only on close inspection; lateral toes of unequal length, the inner (without claw) reaching only to middle (subterminal) joint of middle toe, the outer (without claw) reaching to middle of subterminal phalanx of middle toe, its claw reaching to base of middle claw; hallux (without claw) slightly shorter than outer toe, slightly longer than inner, its claw much shorter than the digit; all the claws grooved on both sides (as in *Hylorchilus*); basal phalanx of middle toe adherent to outer toe for entire length, to inner toe for most of its length.

Coloration.—Above grayish brown, becoming more rusty posteriorly, the tail cinnamon-rufous, crossed by distant bars of black; back, etc., more or less speckled or dotted with dusky and whitish; chin, throat, and chest white; rest of under parts rusty, more or less speckled or dotted with whitish and dusky.

Nidification.—Nest in holes, usually among rocks, sometimes in buildings; eggs white, speckled with reddish brown.

Range.—Arid portions of western United States and Mexico (Monotypic.)

KEY TO THE SUBSPECIES OF CATHERPES MEXICANUS.

- a. Darker, the general color of upper parts sepia brown (tinged with chestnut on back and rump), the abdomen, etc., rich chestnut; black bars on tail broader.
- b. Larger and darker; adult male averaging, wing 68, tail 56, exposed culmen 23.9, tarsus 20; adult female, wing 63.1, tail 53.2, exposed culmen 21.6, tarsus 19.2 (Southern and central parts of Mexican plateau.)

Catherpes mexicanus mexicanus (p. 653)

- bb. Smaller and paler; adult male averaging, wing 58.1, tail 51.6, exposed culmen 20.5, tarsus 18.6; adult female, wing 56.2, tail 47.8, exposed culmen 19.1, tarsus 17.7. (California, except southeastern and extreme southern portions.)

Catherpes mexicanus punctulatus (p. 659)

- aa. Paler, the general color of upper parts light grayish brown (more rufescent on back and rump), the abdomen, etc., lighter chestnut; black bars on tail narrower.

- b. Larger; adult male averaging, wing 63.5, tail 54, exposed culmen 25.6, tarsus 19.6; adult female, wing 60.5, tail 51.3, exposed culmen 21.7, tarsus 18.5. (Northeastern and east-central portion of Mexican plateau.)

Catherpes mexicanus albifrons (p. 657)

- bb. Smaller; adult male averaging, wing 58.2, tail 50.5, exposed culmen 20, tarsus 17.7; adult female, wing 57.2, tail 49.5, exposed culmen 18.3, tarsus 17.3. (Colorado, Utah, Nevada, southeastern California, and parts of Arizona.)

Catherpes mexicanus conspersus (p. 658)

Various intermediate between the two smaller northern and two larger southern forms, as characterized above. (Texas, New Mexico, Arizona, southern California, Lower California, Sonora, and Chihuahua.) *Catherpes mexicanus polioptilus* (p. 660)

CATHERPES MEXICANUS MEXICANUS (Swainson).

MEXICAN CANYON WREN.

Adults (sexes alike).—Above, deep sepia or bistre brown, the back, scapulars, and rump (especially the last) more chestnut-brown or vandyke, the whole surface (except wings) more or less distinctly vermiculated with dusky and more or less profusely dotted or flecked with white;^a upper tail-coverts chestnut with a subterminal small, blackish spot of dusky, and usually one of whitish, often with additional indistinct narrow, blackish bars, very rarely wholly immaculate; tail clear chestnut or deep cinnamon-rufous, crossed (on both webs) by distant narrow bars^b of black, these much broader on the lateral than on the middle rectrices; malar and suborbital regions, lower half (approximately) of auricular region, chin, throat, and upper chest immaculate white; rest of under parts rich chestnut, fading anteriorly (on lower chest) into pale cinnamon-rufous, the deeper colored (chestnut) portion more or less distinctly barred or speckled with black and dotted or flecked with white;^c maxilla dusky horn color, with paler tomia; mandible dull whitish (in dried skins) basally, becoming grayish or dusky terminally; iris brown; legs and feet blackish or dark brown.

Young.—Similar to adults, but upper parts more coarsely vermiculated with dusky and with few if any white specks or dots; chestnut of abdomen, etc., duller, immaculate, or with very indistinct narrow dusky bars, mostly on flanks.

Adult male.—Length (skins), 138–156 (147.9); wing, 64.5–72 (68);

^a There is great individual variation in the amount or extent of this white dotting or speckling, which rarely is so sparse as to be nearly absent. Occasionally the white markings take the form of short streaks, but usually they are more or less roundish in form.

^b There is great individual variation in the width of these black bars, those on the middle rectrices varying (on different specimens) from less than one millimeter to nearly two millimeters in width, those on the lateral rectrices from about one and a half to three millimeters.

^c The white speckling sometimes obsolete, especially in worn summer plumage.

tail, 53-60.5 (56); exposed culmen, 23-24.5 (23.9); tarsus, 19.5-21.0 (20.5); middle toe, 14.5-17 (15.9).^a

Adult female.—Length (skins), 133-147.5 (138.1); wing, 60-66 (63.1); tail, 51-55.5 (53.2); exposed culmen, 19.5-23 (21.6); tarsus, 18.5-20 (19.2); middle toe, 14-15.5 (14.7).^b

Central and southern portions of Mexican plateau, in States of southern Chihuahua (Batopilas), Durango (Chacala), Michoacan (La Salada; Patzcuaro), Jalisco (Ocotlan; San Sebastian; Zapotlan; Bolaños; Guadalajara; Huejuquilla), Morelos (Puente de Ixtla), Hidalgo (Real del Monte), Mexico (Valley of Mexico), Guanajuato, Vera Cruz (Jico; Chichicaxtla; Orizaba; Mirador), Puebla (Atlixco), Oaxaca (Tlaxiaco; Tlaxiaco; Cuicatlan; Santo Domingo; La Parada; Santa Efigenia; Tehuantepec; Mount Zempoaltepec), and Colima (Rio de Coahuayana and Territory of Tepic (Tepic).

Thryothorus mexicanus SWAINSON, Zool. Illustr., 2d ser., i, 1829, pl. 11 (Real del Monte, Hidalgo).

Troglodytes mexicanus LICHTENSTEIN, Preis-Verz. Mex. Vög., 1831, 2; Journ. für Orn., 1863, 57 (reprint).

[*Troglodytes*] *mexicanus* GRAY, Gen. Birds, i, 1847, 159.

Salpinctes mexicanus CABANIS, Wiegmann's Archiv. für Naturg., 1847 (i), 321; SCLATER, Proc. Zool. Soc. Lond., 1857, 212 (Orizaba, Vera Cruz); 1858, 212 (Oaxaca); Cat. Am. Birds, 1862, 18 (Mexico).

[*Salpinctes*] *mexicanus* CABANIS, Mus. Hein., i, 1850, 78.

[*Salpinctes*] *mexicanus* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1882, 40.

Catherpes mexicanus BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 356, part (in synonymy); Review Am. Birds, 1864, 111, part (Mirador, Vera Cruz; Rio de Coahuayana, Colima).—SCLATER, Proc. Zool. Soc. Lond., 1864, 172 (City of Mexico).—SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 545 (temperate region, Vera Cruz).—DUGES, La Naturelle, i, 1869, 139 (Guanajuato; Guadalajara, Jalisco).—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 268 (Tepic; Guadalajara).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 72, part (Mexican localities and references).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 280 (Puebla).—SALVIN, Cat. Strickland Coll., 1882, 76.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 717, part (Mexico).

[*Catherpes*] *mexicanus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 6, part.

[*Catherpes*] *mexicanus* COUES, Key N. Am. Birds, 2d ed., 1884, 276, part.—RIDGWAY, Man. N. Am. Birds, 1887, 549, part.

[*Catherpes mexicanus*] var. *mexicanus* RIDGWAY, Am. Nat., vii, Oct., 1873, 465 (diagnosis).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 138.

Catherpes mexicanus mexicanus OBERHOLSER, Auk, xx, Apr., 1903, 196 (diagnosis; range).

[*Cyphorhinus*] *mexicanus* GRAY, Hand-list, i, 1869, 194, no. 2674.

(?) *Troglodytes murarius* LICHTENSTEIN, Preis-Verz. Mex. Vög., 1831, 2 (Yantepec; Morelos; coll. Berlin Mus.); c Journ. für Orn., 1863, 57 (reprint).

(?) *Salpinctes murarius* LICHTENSTEIN, Nom. Mus. Berol., 1854, 35.

Thriothorus gutturalis LAFRESNAYE, Rev. Zool., ii, 1839, 99 (Mexico).

^a Fourteen specimens.

^b Seven specimens.

^c Probably an Indian artefact, the blue tail of some other bird (perhaps *Sialia*) being substituted for that of *Catherpes*.

CATHERPES MEXICANUS ALBIFRONS (Giraud).

GIRAUD'S CANYON WREN.

Similar in size to *C. m. mexicanus* (the bill averaging even longer), but coloration much paler, the general color of upper parts more grayish brown, chestnut of abdomen, etc., paler, and black bars on bill averaging narrower.

Adult male.—Length (skins), 130–149 (141.2); wing, 62–65 (63.5); tail, 52–56 (53.7); exposed culmen, 24.5–26 (25.6); tarsus, 19–20 (19.6); middle toe, 14–15 (14.4).^a

Adult female.—Length (skins), 124–142 (132); wing, 58–64 (60.5); tail, 49–55 (51.3); exposed culmen, 20–24 (21.7); tarsus, 18–19 (18.5); middle toe, 13–14 (13.5).^b

Northeastern and north-central portion of Mexican plateau, in States of Nuevo Leon (Monterey; Santa Catarina; Sierre Madre), Coahuila (Patos), San Luis Potosi,^c eastern Zacatecas,^c and Aguas Calientes (Aguas Calientes), and southwestern Texas near mouth of Pecos River (Langtry); probably also eastern Chihuahua.

Catherpes mexicanus (not *Thryothorus mexicanus* Swainson) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 356, part (Patos, Coahuila; Nuevo Leon); Rep. U. S. and Mex. Bound. Surv., ii, pt. 2, 1859, 13 (Coahuila; Nuevo Leon; habits; song); Review Am. Birds, 1864, 111, part (Nuevo Leon).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 72, part (in synonymy).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 280, part (in synonymy).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 717, part.

[*Catherpes*] *mexicanus* COUES, Key N. Am. Birds, 1872, 86, part.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 6, part.

[*Catherpes*] *mexicanus* RIDGWAY, Man. N. Am. Birds, 1887, 549, part.

[*Catherpes mexicanus*] var. *mexicanus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 138, part.

Certhia albifrons GIRAUD, Sixteen Species Texan Birds, 1841, pl. 13 ("Texas;" type now in coll. U. S. Nat. Mus.).^d

Troglodytes albifrons BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 327 ("Texas").

Catherpes mexicanus albifrons NELSON, Auk, xv, April, 1898, 160 (crit.; "Lower Rio Grande, in Texas;" "Tamaulipas;" Nuevo Leon; "Isthmus of Tehuantepec")^e.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi,

^a Four specimens.

^b Five specimens.

^c No specimens seen from the States mentioned, which, however, are necessarily included within the range of the former.

^d The type is a young bird with bill broken off. I have not been able to match it exactly, but it seems to be referable to the present form, as Mr. Oberholser has already stated.

^e I do not know Mr. Nelson's reasons for including the lower Rio Grande Valley, Tamaulipas, and the Isthmus of Tehuantepec in the range of this form. It certainly does not occur in the last-named locality, where only typical *C. mexicanus* is found. The only specimens I have seen are from Langtry, southwestern Texas, near the mouth of the Pecos River, and from the States of Nuevo Leon, Coahuila, and Aguas Calientes, in northeastern and north-central Mexico. Mr. Nelson's remarks would imply that these birds are migratory; on the contrary, they remain the year round even in the extreme northern parts of the range of the genus, in Nevada, Utah, and Colorado.

1899, 124.—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 46.—
OBERHOLSER, Auk, xx, 1903, 196 (diagnosis; range; crit.).

Catherpes mexicanus conspersus (not of Ridgway) AMERICAN ORNITHOLOGICAL
UNION, Check List, 2d ed., 1895, no. 717a, part (Aguas Calientes).

C[atherpes] m[exicanus] conspersus BAILEY (Florence M.), Handb. Birds W. U. S.,
1902, 445, part (Aguas Calientes).

CATHERPES MEXICANUS CONSPERSUS Ridgway.

CANYON WREN.

Similar in coloration to *C. m. albifrons* but decidedly paler and much smaller.

Adult male.—Length (skins), 124–139 (129.4); wing, 56.5–61.5 (59.7); tail, 51–54 (52.4); exposed culmen, 19–22.5 (20.5); tarsus, 17.5–18.5 (18.1); middle toe, 12–13.5 (12.8).^a

Adult female.—Length (skins), 118–131 (124.2); wing, 55–60.5 (57.2); tail, 46–55 (49.5); exposed culmen, 17–20 (18.3); tarsus, 17–17.5 (17.3); middle toe, 12–12.5 (12.2).^b

Central arid district of western United States, from Wyoming and Colorado to Nevada, and southward into Arizona (Tucson, mountains near Gila River, Fort Verde, Prescott, Cochise, Pima County, Pinal County, Huachuca Mountains, etc.) and southeastern California (Fort Tejon; Panamint Mountains).

Troglodytes mexicanus (not *Thryothorus mexicanus* Swainson) CASSIN, Illustr. Birds Cal., Tex., etc., 1854, 173, part [pl. 30].^b

Catherpes mexicanus BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 356, part (Fort Tejon, California); Cat. N. Am. Birds, 1859, no. 263, part; Review Am. Birds, 1864, 111, part (Fort Tejon).—XANTUS, Proc. Ac. Nat. Sci. Phila., 1859, 191 (Fort Tejon).—ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 148 (Garden of Gods, Colorado; notes), 175 (Colorado City); Am. Nat., vi, 1872, 494 (do.).—AIKEN, Proc. Bost. Soc. N. H., xv, 1872, 196 (Colorado, winter).—MERRIAM, Rep. U. S. Geol. Surv. for 1872 (1873), 713 (Utah).—CORN CHECK LIST, 1873, no. 46, part; Birds N. W., 1874, 28, part.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 72, part (in synonymy).

Catherpes mexicanus, var. *conspersus* RIDGWAY, Am. Nat., vii, Oct., 1873, 605 (Fort Churchill, Nevada; coll. U. S. Nat. Mus.; descr.; crit.; habits); Bull. Essex Inst., v, 1873, 172 (Salt Lake City, Utah), 180 (Colorado).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 139; iii, 1874, 503 (Colorado; Utah; crit.).

^a Six specimens. Specimens from Arizona, which I am unable to distinguish from typical examples of this form, average as follows:

Two adult males: Length (skins), 123–124 (123.5); wing, 57–59.5 (58.2); tail, 50–51 (50.5); exposed culmen, 19–21 (20); tarsus, 17.5–18 (17.7); middle toe, 13–14 (13.5).

Six adult females: Length (skins), 115–134 (124.2); wing, 56–59 (57.2); tail, 47–51 (49.2); exposed culmen, 17–19 (18.5); tarsus, 16.5–18 (17.5); middle toe, 12–13.5 (13.1).

^b The figure is too poor for certain identification, and the locality of the specimen figured not given.

Catherpes mexicanus . . . var *conspersus* COUES, Check List, 1873, App. p. 125.—YARROW and HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 9 (Toquerville, Utah; habits; notes).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 41 (Utah, resident); Zool. Exp. W. 100th Merid., 1875, 181, part (Toquerville, Utah; Colorado; habits).

[*Catherpes mexicanus*.] *β. conspersus* RIDGWAY, Orn. 40th Parallel, 1877, 420 (Nevada and Utah, resident; habits; song).

Catherpes mexicanus, *β. conspersus* RIDGWAY, Field and Forest, iii, May, 1877, 196 (Colorado).

Catherpes mexicanus conspersus RIDGWAY, Bull. Essex Inst., vii, Jan. 1875, 10, 20 (Carson City and East Humboldt Mts., Nevada); Nom. N. Am. Birds, 1881, no. 59a, part.—COUES, Birds Col. Val., 1878, 164, part; Check List, 2d ed., 1882, no. 67, part.—MINOT, Bull. Nutt. Orn. Club, v, 1880, 181 (Manitou, Colorado; descr. nest and eggs), 225 (habits, etc.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 717a, part.—NEHRING, Our Native Birds, i, 1893, 139, part, pl. 9.—FISHER (A. K.), North American Fauna, no. 7, 1893, 133 (Panamint Mts., etc., s. e. California).—COOKE, Bull. 37. Col. Agric. Coll., 1897, 120 (Colorado, resident).—GRINNELL (J.), Pacific Coast Avifauna, no. 3, 1902, 68 (s. e. California; desert ranges east of Sierra Nevada).—OBERHOLSER, Auk, xx, 1903, 198 (diagnosis; range).

[*Catherpes*] *mexicanus conspersus* COUES, Key N. Am. Birds, 2d ed., 1884, 276, part.—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 445, part, pl.

[*Catherpes*] *mexicanus conspersus* RIDGWAY, Man. N. Am. Birds, 1887, 549, part.

Catherpes mexicanus . . . var. BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 8, fig. 4.^a

CATHERPES MEXICANUS PUNCTULATUS Ridgway.

DOTTED CANYON WREN.

Similar in small size to *C. m. conspersus*, but decidedly darker (intermediate in coloration between *C. m. mexicanus* and *C. m. albifrons*).

Adult male.—Length (skins), 120–137 (130.6); wing, 55.5–62.5 (59.4); tail, 47.5–54.5 (51.6); exposed culmen, 19–21.5 (20.5); tarsus, 17.5–19 (18.6); middle toe, 12.5–14 (13.4).^b

Adult female.—Length (skins), 119–129 (125); wing, 56–56.5 (56.2); tail, 46.5–50 (47.8); exposed culmen, 20^c; tarsus, 17–18 (17.7); middle toe, 13–14 (13.5).^d

California, except southeastern and extreme southern portions; north to Butte, Shasta, and Napa counties, south to western portion of Riverside County (Elsinore), and northern part of Kern County (Kernville).

Troglodytes mexicanus (not *Thryothorus mexicanus* Swainson) HEERMANN, Journ. Ac. Nat. Sci. Phila., ii, 1853, 263 (Cosumnes and Calaveras rivers, California); Rep. Pacific R. R. Surv., x, pt. iv, 1859, 41 (do.).—CASSIN, Illustr. Birds Cal., Tex., etc., 1854, 173, part (Cosumnes and Calaveras rivers, California).

^a The specimen figured is the type of *C. m. conspersus*, from Nevada, and not from Mexico, as erroneously stated in the text.

^b Seven specimens.

^c One specimen.

^d Three specimens.

- Catherpes mexicanus* COOPER, Orn. Cal., 1870, 66 (San Joaquin Valley; Calaveras and Cosumnes rivers).
- Catherpes mexicanus* var. *conspersus* (not of Ridgway) HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1876, 231 (Walker's Basin, s. California).
- Catherpes mexicanus*, *β. conspersus* RIDGWAY and BELDING, Proc. U. S. Nat. Mus., i, 1878, 402 (Murphys, Calaveras Co., California, Feb., Mar.).
- Catherpes mexicanus conspersus* COUES, Birds Col. Val., 1878, 164, part; Check List 2d ed. 1882, no. 67, part.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 55a, part.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 717a, part.—TOWNSEND (C. H.), Proc. U. S. Nat. Mus., x, 1887, 226 (Baird and Moore, Shasta, n. California; habits; notes).
- Catherpes conspersus* BELDING and RIDGWAY, Proc. U. S. Nat. Mus., i, 1878, 34 (Calaveras Co., California).
- Catherpes mexicanus punctulatus* RIDGWAY, Proc. U. S. Nat. Mus., v, Sept. 5, 1882, 343 (Forest Hill, Placer Co., California; coll. U. S. Nat. Mus.); Bull. Nat. Orn. Club, vii, 1882, 257.—REICHENOW and SCHALOW, Journ. für Orn., 1884, 422 (reprint of orig. descr.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 2d ed., 1895, no. 717b, part.—GRINNELL (J.), Pub. 2, Pasadena Acad. Sci., 1898, 48 (Los Angeles Co., California; resident); Pacific Coast Avifauna, no. 3, 1902, 68 (Mount Diabolo, Mount St. Helena, and w. slope Sierra Nevada).—FISHER (W. K.), Condor, ii, 1900, 138 (Mount St. Helena, Napa Co., California).—BARLOW, Condor, ii, 1900, 133 (near Berryessa, Santa Clara Co.; resident).—MAILLIARD, Condor, iii, 1901, 126 (San Benito Co., California, resident).—OBERHOLSER, Auk, xx, 1903, 197 (diagnosis; range).
- C[atherpes] m[exicanus] punctulatus* COUES, Key N. Am. Birds, 2d ed., 1884, 276.—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 445, part.
- C[atherpes] mexicanus punctulatus* RIDGWAY, Man. N. Am. Birds, 1887, 549, footnote, in text.

CATHERPES MEXICANUS POLIOPTILUS Oberholser.

INTERMEDIATE CANYON WREN.

Variouly intermediate in size and coloration between *C. m. conspersus* on the one hand and *C. m. mexicanus* and *C. m. albigrons* on the other, specimens from Texas and New Mexico connecting the first and last named being slightly paler, those from Arizona, southern California, Lower California, Sonora, and Chihuahua, connecting the first and second, being darker. Measurements vary as follows:

SPECIMENS FROM TEXAS AND NEW MEXICO.

Adult male.—Length (skins), 131–140 (136.3); wing, 60–67 (62.7); tail, 50.5–58 (55.1); exposed culmen, 20–22 (21); tarsus, 18–20.5 (19.1); middle toe, 12.5–14 (13.5). (Six specimens.)

Adult female.—Length (skins), 128–141 (131.8); wing, 58–63.5 (60.1); tail, 50.5–55 (52.1); exposed culmen, 19–19.5 (19.2); tarsus, 18–19 (18.3); middle toe, 12.5–14 (13.2). (Six specimens.)

SPECIMENS FROM ARIZONA.^a

Adult male.—Length (skins), 119–134 (126.3); wing, 57–63 (60.1); tail, 49–56 (52.1); exposed culmen, 19–21 (20.1); tarsus, 16.5–19 (17.8); middle toe, 12.5–14 (13.2). (Ten specimens.)

^a A considerable number of Arizona specimens, which I am unable to distinguish from *C. m. conspersus*, are excluded here.

Adult female.—Length (skins), 120–126 (123); wing, 58–60 (59); tail, 49–50 (49.5); exposed culmen, 19; tarsus, 17–18 (17.5); middle toe, 13–14 (13.5). (Two specimens).

SPECIMENS FROM SOUTHERN CALIFORNIA.^a

Adult male.—Length (skins), 121–131 (127.7); wing, 58.5–61 (59.8); tail, 50–52 (51); exposed culmen, 20–22.5 (21.2); tarsus, 17–18.5 (17.8); middle toe, 13. (Three specimens.)

Adult female.—Length (skin), 128; wing, 57.5; tail, 49; exposed culmen, 20.5; tarsus, 17; middle toe, 13. (One specimen.)

SPECIMENS FROM LOWER CALIFORNIA.^b

Adult male.—Length (skins), 120–131 (125.5); wing, 58.5–59.5 (59); tail, 51; exposed culmen, 20–22 (21); tarsus, 17.5–18 (17.7); middle toe, 13–13.5 (13.2). (Two specimens.)

Adult female.—Length (skin), 122; wing, 56; tail, 49; exposed culmen, 18.5; tarsus, 16; middle toe, 12.5. (One specimen.)

SPECIMENS FROM SONORA.^c

Adult male.—Length (skins), 122–132 (128.2); wing, 60–64 (61.4); tail, 50–52.5 (51.4); exposed culmen, 18.5–22 (20.7); tarsus, 18–20 (19); middle toe, 13.5–15 (14.1). (Five specimens.)

Adult female.—Length (skins), 125.5–128 (126.6); wing, 56–60 (58.5); tail, 47.5–51.5 (49.3); exposed culmen, 16.5–20 (18.3); tarsus, 17–18.5 (17.7); middle toe, 13–14 (13.5). (Five specimens.)

SPECIMENS FROM CHIHUAHUA.^d

Adult male.—Length (skins), 125–139 (131.6); wing, 60.5–64 (62.3); tail, 49.5–53 (50.9); exposed culmen, 21.5–22 (21.8); tarsus, 18–19.5 (18.6); middle toe, 13–15 (14.2). (Seven specimens.)

Adult female.—Length (skin), 132.5; wing, 56; tail, 49; exposed culmen, 21; tarsus, 18; middle toe, 14. (One specimen.)

Southwestern border of United States, from Texas (east to Stephens, Eastland, Bosque, and Bexar counties) through New Mexico and Arizona to southern California (San Bernardino and San Diego counties), and southward into Lower California (to the Cape district), Sonora (near Oposura, Pachica, Alamos, etc.) and Chihuahua (Bravo, Jesus Maria, Hacienda San Rafael, Batopilas, etc.).

This is not a clearly defined form, like the others here recognized, but rather a variable series of intermediates, segregated for nomenclatural convenience. Examples from Arizona and southward to

^a San Bernardino and San Diego counties.

^b Cape St. Lucas district.

^c Mostly from Alamos, in the southern part, there being besides only one male from Oposura, and two females, one from Oposura, the other from Pachuca.

^d All but two (these from Batopilas) being from Hacienda San Rafael.

southern Sonora are intergrades between *C. m. mexicanus* and *C. m. conspersus*, gradually becoming larger and darker to the southward. The average coloration of this intermediate series is almost identical with that of *C. m. punctulatus*, and many specimens from Arizona have consequently been erroneously identified with that form. At the same time, occurring with these darker birds, sometimes apparently in the same locality, are individuals which seem to be in every way absolutely typical *C. m. conspersus*. Texan specimens are appreciably paler than the average of those from Arizona, as should be the case when the adjacent forms on each side are light colored, *C. m. albifrons* being but little if any darker than *C. m. conspersus*. The series of specimens from the Cape district of Lower California is very small and therefore unsatisfactory for comparison, but there seems to be no difference between them and those from southern California and Arizona.

Troglodytes mexicanus (not *Thryothorus mexicanus* Swainson) CASSIN, Illustr. Birds Cal., Tex., etc., 1854, 173, part ("New Mexico," i. e., Arizona).

Catherpes mexicanus BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 356, part (Bill Williams Fork, Arizona); Cat. N. Am. Birds, 1859, no. 263, part; Review Am. Birds, 1864, 111, part (New Mexico).—KENNERLY, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 26 (Bill Williams Fork).—DRESSER, Ibis, 1865, 484 (San Antonio, Texas).—COUES, Proc. Ac. Nat. Sci. Phila., 1866, 77 (Arizona); Check List, 1873, no. 46, part; Birds N. W., 1874, 28, part.—COOPER, Am. Nat., viii, 1874, 17, in text (Cajon Valley, San Bernardino Co., California).—BATCHELDER, Auk, ii, 1885, 233, in text (Las Vegas, New Mexico; habits; notes).—ALLEN, Bull. Am. Mus. N. H., v, 1893, 41 (Pachica, Sonora).

[*Catherpes*] *mexicanus* COUES, Key N. Am. Birds, 1872, 86, part.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 6, part.

Catherpes mexicanus, var. *conspersus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 139, part.

Catherpes mexicanus . . . var. *conspersus* HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 101 (Apache, Arizona; headwaters Gila R., New Mexico), 155 (Arizona); Zool. Expl. W. 100th Merid., 1875, 181, part (Camp Apache, mountains near Gila R., and Black R., Arizona; New Mexico; habits).

Catherpes mexicanus conspersus COUES, Birds Col. Val., 1878, 164, part; Check List, 2d ed., 1882, no. 67, part.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 59a, part.—BROWN (N. C.), Bull. Nutt. Orn. Club, vii, 1882, 35 (Boerne, Kendall Co., Texas, resident).—BELDING, Proc. U. S. Nat. Mus., v, 1883, 535 (La Paz, etc., Lower California); vi, 1883, 543 (Guaymas, Sonora).—SCOTT (W. E. D.), Auk, ii, 1885, 350 (Santa Catalina Mts., Arizona, breeding; habits; song); v, 1888, 162 (s. Arizona, resident up to 5,000 ft.; descr. nest, etc.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 717a, part.—BECKHAM, Proc. U. S. Nat. Mus., x, 1888, 690 (Leon Springs, Texas; habits; song).—HASBROUCK, Auk, vi, 1889, 240 (Meridian, Bosque Co., Texas).—ATTWATER, Auk, ix, 1892, 342 (San Antonio, Texas).—STONE and REHN, Proc. Ac. Nat. Sci. Phila., 1903, 29 (Otero Co., New Mexico).

C[atherpes] m[exicanus] conspersus COUES, Key N. Am. Birds, 2d ed., 1884, 276, part.—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 445, part.

C[atherpes] mexicanus conspersus RIDGWAY, Man. N. Am. Birds, 1887, 549, part.

- Catherpes mexicanus punctulatus* (not of Ridgway) ANTHONY, Zoe, iv, 1893, 245 (San Pedro, Martir Mts., Lower California) Auk, xii, 1895, 143 (San Fernando, Lower California).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 2d ed., 1895, no. 717b, part (Lower California).—BREWSTER, Bull. Mus. Comp. Zool., xli, 1902, 200 (Sierra de la Laguna, Lower California).
C[atherpes] m[exicanus] punctulatus COUES, Key N. Am. Birds, 2d ed., 1884, 276, part.—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 445, part.
Catherpes mexicanus polioptilus OBERHOLSER, Auk, xx, Apr., 1903, 197 (Deer Mt., Chisos Mts., w. Texas; coll. U. S. Nat. Mus.).

Genus *HYLORCHILUS* Nelson.

Hylorchilus^a NELSON, Auk, xiv, no. 1, Jan., 1897, 71. (Type, *Catherpes sumichrasti* Lawrence.)

Large Troglodytidæ (exposed culmen more than 25 mm., tarsus more than 30 mm.) with the inner toe (without claw) reaching to but not beyond penultimate joint of middle toe, tail less than twice as long as tarsus (the latter nearly half as long as wing), ninth primary much shorter than secondaries, and the tail uniform blackish brown.

Bill very long, straight; exposed culmen more than two-fifths as long as wing, nearly or quite as long as tarsus, straight to near tip where gently decurved; gonys decidedly shorter than distance from nostril to tip of maxilla, straight, its base very slightly prominent; depth of bill at frontal antiæ equal to its width at same point; maxillary tomium without subterminal notch. Nostril obliquely longitudinal (its posterior end higher than anterior), narrowly guttate or fusiform, overhung by a distinct, corneous, excurrent operculum. Rictal bristles obsolete; feathers of latero-frontal antiæ advancing nearly to posterior end of nostril. Wing short, excessively rounded, extremely concave beneath; fifth, fourth, third, and second primaries longest, the sixth scarcely longer than first, seventh about equal to first, eighth not longer than secondaries, ninth very much shorter than secondaries, and tenth two-thirds as long as ninth. Tail less than twice as long as tarsus, the rectrices rather loose-webbed, apparently acuminate at tip with the stiffened though slender shaft somewhat projecting.^b Tarsus very long (nearly half as long as wing, equal to or longer than exposed culmen), the acrotarsium distinctly scutellate, but planta tarsi on both sides booted; middle toe, with claw, decidedly shorter than tarsus; lateral toes very unequal in length, the inner (without claw) reaching only to middle (subterminal) joint of middle toe, the outer reaching to middle of subterminal phalanx of middle toe, its claw reaching to base of middle claw; hallux (without claw) shorter than outer, but somewhat longer than inner toe (without claw), its claw much shorter than

^a From "ελη, forest; όρχιλος, wren.

^b Of the two specimens examined (the only ones known) only one has any of the rectrices remaining, and this has only five, most of these with the ends broken off; consequently I am unable to properly describe this portion of the bird's anatomy.

the digit; all the claws grooved on each side; basal phalanx of middle toe adherent to outer toe to beyond basal phalanx of the latter, to inner toe for more than half its basal phalanx.

Coloration.—Uniform deep vandyke brown above, darkening into sooty posteriorly and on wings; beneath deepening from pale wood brown on throat through tawny-brown to sooty, the abdomen with a few white specks.

Range.—Mountains of Vera Cruz, southeastern Mexico. (Monotypic.)

HYLORCHILUS SUMICHRISTI (Lawrence).

SUMICHRIST'S WREN.

Adults (sexes alike?).—Pileum, hindneck and back uniform deep vandyke brown or mummy brown, gradually deepening into dark sooty brown on rump, upper tail-coverts, wings, and tail, the wing with very indistinct narrow edgings of somewhat brighter brown, these edgings broken by dusky marks, observable only on very close inspection; chin and throat pale wood brown or isabella color, gradually deepening into raw-umber brown or light vandyke brown on chest, this gradually becoming darker posteriorly, the abdomen, sides, and flanks deep mummy brown, shading into uniform dark sooty brown or seal brown on thighs; chest showing very faint indications of darker bars; abdomen sparsely marked with minute dots of white, these partly encircled with dusky and intermixed with indistinct small spots or bars of dusky; axillars and under wing-coverts plain bistre brown; bill brownish black, becoming whitish on under side of mandible, especially on the rami; iris brown;^a legs and feet blackish brown.

Adult male?^b.—Length (skin), 147;^c wing, 64–68 (66); exposed culmen, 26.5–28 (27.2); depth of bill at frontal antiaë, 5.5; tarsus, 29–31 (30); middle toe, 22–23 (22.5).^d

Adult female?^e.—Length (skin), 150; wing, 64; tail, 44; exposed culmen, 27; tarsus, 31.5; middle toe, 22.5.

Mountains of southeastern Mexico, in State of Vera Cruz (Mato Bejuco; Motzorongo).

Catherpes sumichrasti LAWRENCE, Proc. Ac. Nat. Sci. Phila., Dec. 5, 1871, 233 (Mato Bejuco, Vera Cruz; coll. U. S. Nat. Mus.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 74.—SHARPE, Cat. Birds Brit. Mus., vi, 1891, 283.

^a Sumichrast, manuscript.

^b One of the specimens (the type) is not sexed, but being larger than the other is probably a male.

^c One specimen.

^d Two specimens.

^e No. 142878, U. S. Nat. Mus. (Biological Survey Coll.), Motzorongo, Vera Cruz, March 5, 1894; Nelson and Goldman. This specimen is doubtfully determined by the collectors as male; but being so much smaller than the other, except in length of tarsus, there is reason to justify the suspicion that it may be a female.

O[atherpes] sumichrasti RIDGWAY, Man. N. Am. Birds, 1887, 549.

Hylorchilus sumichrasti NELSON, Auk, xiv, Jan., 1897, 72 (Motzorongo, Vera Cruz, 800 to 1,200 ft.; measurements; habits).

Genus MICROCERCULUS Sclater.

Microcerculus SCLATER, Cat. Am. Birds, 1862, 19. (Type, *Turdus bambla* Boddaert.) (See Baird, Review Am. Birds, 1864, 113; diagnosis).

Small Troglodytidæ (wing 50–60 mm.) most resembling *Henicorhina*, but with tail much less than half as long as wing, bill much longer (exposed culmen nearly one-third as long as wing), with tip of maxilla more strongly and abruptly decurved, lateral toes reaching only to subterminal joint of middle toe, and sides of neck plain brown or gray.

Bill about as long as head, straight, with tip of maxilla almost abruptly decurved, depressed at base, its depth at latero-frontal antiæ equal to nearly or quite one-third the distance from nostril to tip of maxilla, but less than its width at same point; exposed culmen equal to or longer than middle toe without claw but shorter than tarsus, straight, or nearly so, to near tip, where rather abruptly decurved; gonys much shorter than distance from nostril to tip of maxilla, straight or almost imperceptibly convex, its base rather prominent from narrowness of mandibular rami; maxillary tomium nearly straight, distinctly notched subterminally, the rictus decidedly and rather abruptly deflexed. Nostril mostly closed by the broad, convex overhanging (decumbent) membranous operculum, but open posteriorly (against feathering of latero-frontal antiæ, from contraction of the operculum at its posterior end.^a Rictal bristles obsolete. Wing short, very concave beneath, much rounded; seventh, sixth, and fifth primaries longest; eighth about equal to third; ninth shorter than secondaries, less than twice as long as tenth. Tail excessively short, less than three-eighths to a little more than two-fifths as long as wing, not much longer (sometimes shorter) than tarsus, much rounded or graduated, the rectrices rounded or subacuminate at tip. Tarsus long and slender, decidedly (sometimes much) longer than exposed culmen, nearly two-fifths as long as wing, the acrotarsus distinctly scutellate, the planta tarsi booted; middle toe (with claw) shorter than tarsus; outer toe (without claw) reaching to or slightly beyond subterminal joint of middle toe, its claw falling far short of base of middle claw; inner toe equal to or

^aThe form of the nostril in this genus is thus accurately described by Salvin (Proc. Zool. Soc. Lond., 1866, 70, 71): The nostril is partially covered by a membrane, which, being convex along its unattached lower edge, meets the lower margin of the nasal cavity toward its anterior end, leaving the posterior end open and comma-shaped, the tail of the comma extending anteriorly. No septum or division is seen externally, but by raising the valvular membrane it appears. This septum, however, is perfectly free and unattached to the membrane of the nostril [operculum] and does not adhere to it as Prof. Baird states (with doubt). The perfect nostril never appears double. (See Baird, Review Am. Birds, 1864, 113, 114.)

slightly shorter than outer; hallux (without claw) slightly shorter than outer toe (without claw), its claw decidedly shorter than the digit; basal phalanx of middle toe adherent to outer toe for greater part (sometimes nearly all) of its length, to inner toe for about two-thirds of its length.

Coloration.—Above brown, usually barred or squamated with dusky, the remiges and rectrices uniform dusky; sometimes a white bar across greater wing-coverts; under parts grayish, becoming brown on sides, flanks, and posterior parts, more or less barred or squamated (especially on lateral and posterior portions) with dusky.

Range.—Southern Mexico to Guiana and eastern Ecuador.

KEY TO THE SPECIES OF MICROCERCULUS.^a

- a. Back and scapulars plain brown, without dusky margins to the feathers. (Adults.)
 - b. Ground color of chest and breast brownish gray or grayish brown.
 - c. Brownish gray of breast, etc., uniform, or with extremely faint brownish bars. (Isthmus of Panama.) *Microcerculus lusciniæ*, adults (p. 669)
 - cc. Brownish gray of breast, etc., not uniform, but varied with dusky or dusky and whitish.
 - d. Brownish gray of breast with V-shaped marks of dusky; flanks darker brown, uniform. (Eastern Costa Rica.)
 - Microcerculus daulias*, adults (p. 668)
 - dd. Grayish brown of breast with V-shaped and irregular marks of white and dusky; flanks lighter brown, faintly barred with dusky. (Coast of Venezuela.) *Microcerculus pectoralis*, adults (extralimital)^b
 - bb. Ground color of chest and breast white (barred with dark grayish brown). (Province of Santa Marta, northeast Colombia.)
 - Microcerculus corrasus*, adults (extralimital)^c
 - aa. Back and scapulars marked with crescentic bars, or terminal margins, of dusky. (Young.)
 - b. Chin and throat brownish gray, not very different from rest of under parts. (Guatemala.) *Microcerculus philomela*, young^d (p. 667)
 - bb. Chin and throat dull white.
 - c. Throat spotted with brown; median portion of chest and breast pale buffy grayish, conspicuously marked with spots and crescentic bars of dusky.
 - Microcerculus daulias*, young (p. 668)
 - cc. Throat immaculate dull white; whole chest and breast nearly uniform brownish gray *Microcerculus lusciniæ*, young (p. 670)

^a Including two allied extralimital species.

^b *Microcerculus pectoralis* Richmond [in Robinson and Richmond] Proc. U. S. Nat. Mus., xxiv, no. 1247, Oct. 3, 1901, 178 (La Guaira, Venezuela; coll. U. S. Nat. Mus.)

^c *Microcerculus marginatus* (not *Heterocnemis marginatus* Sclater) Bangs, Proc. Biol. Soc. Wash., xiii, 1899, 107 (Chirua, Santa Marta, Colombia); Allen, Bull. Am. Mus. N. H., xiii, 1900, 180 (Onaca, Santa Marta).—*Microcerculus corrasus* Bangs, Proc. New Engl. Zool. Club, iii, Mar. 31, 1902, 87 (Chirua, Santa Marta, Colombia, 7,000 ft. alt.; coll. E. A. and O. Bangs).

This form is closely allied to *Microcerculus squamulatus* Sclater and Salvin (Proc. Zool. Soc. Lond., 1875, 37, pl. 6), of northwestern Venezuela, and may possibly be the same.

^d I have not seen the adult of this species, which appears to be undescribed, and hence can not include it in the key.

MICROCERCULUS PHILOMELA (Salvin).

NIGHTINGALE WREN.

Young?—Above deep sooty brown or sepia, brighter (dark mummy brown) on back and scapulars, the feathers narrowly margined with dusky, producing a rather distinct squamate appearance, these dusky margins becoming less distinct (sometimes obsolete) on lower rump and upper tail-coverts; tail uniform dark sooty brown or brownish black; lesser and middle wing-coverts dark sooty brown or dusky, with a broad subterminal crescentic bar of lighter brown, this paler on the middle coverts, on some of which the color lightens medially into a rather distinct small spot near tip of shaft; greater coverts dusky, broadly edged with sepia brown, each with a small subterminal median spot of whitish or pale brownish buff; remiges dark sooty brown or dusky, the secondaries very indistinctly edged with somewhat lighter sooty, the longer primaries indistinctly edged (in part at least) with a more grayish hue; sides of head, chin, and throat dull brownish gray, each feather of throat margined with sooty brown and with a partly concealed central or basal spot of the same; chest, breast, and upper abdomen similar, but with the sooty brown margin and central space broader and darker; sides, flanks, under tail-coverts, and thighs sepia or bistre brown, more or less distinctly but irregularly barred with dusky, especially on flanks; bill blackish, the mandible more brownish basally; legs and feet dusky brown (in dried skins); length (skins), 99–103.5 (101.2); wing, 55–57.5 (56.2); exposed culmen, 17.5–18 (17.7); tarsus, 20–21 (20.5); middle toe, 15–15.5 (15.2).^a

If I am right in supposing the birds described above to be in immature plumage, the adults of this form, like those of *M. daulias* and *M. luscini*a, are probably plain brown above and with more gray on the under parts.

Highlands of Guatemala (Choctum; Chisec; forests above Lanquin; forests between Cajabon and San Luis).

Cyphorhinus philomela SALVIN, Proc. Zool. Soc. Lond., 1861, 202 (Vera Paz, Guatemala; coll. O. Salvin); Ibis, 1861, 352 (Choctum, Guatemala).—SCLATER, Cat. Am. Birds, 1862, Suppl. no. 120 (Chisec, Guatemala).

[*Cyphorhinus*] *philomela* GRAY, Hand-list, i, 1869, 193, no. 2663.

Microcerculus philomela BAIRD, Review Am. Birds, Aug., 1864, 114 part (Vera Paz).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 76, pl. 5, fig. 3 (Choctum, forests above Lanquin, and forests between Cahabon and San Luis, Guatemala).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 297 (Vera Paz, Guatemala).

[*Microcerculus*] *philomela* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 6.

^a Two specimens, neither of them with sex determined.

MICROCERCULUS DAULIAS Ridgway.

TALAMANCA NIGHTINGALE WREN.

Similar to *M. philomela*, but larger and more rufescent brown.

Adult.—Above plain rich brown (between mummy and vandyke), the pileum duller or less ruddy, the feathers of the forehead very narrowly and indistinctly margined with darker, those of the lower back with very narrow terminal margins of dusky (probably indicating recent molt from immature plumage); upper tail-coverts with a very small and indistinct subterminal transverse spot or bar of dusky; tail uniform dark sooty brown or blackish brown; lesser and middle wing-coverts mummy brown, with an indistinct central area of a more grayish hue, the middle coverts with an indistinct subterminal shaft-streak of dusky; greater coverts dusky, broadly edged with brown, showing very faint narrow bars of dusky, some of them with a minute and very indistinct terminal spot of pale brown; remiges blackish brown, very faintly edged and barred with lighter, or more decided, brown, the primaries indistinctly edged with dull grayish; sides of head, including loreal, suborbital, auricular, and malar regions plain brownish gray, the chin and throat similar but paler (pale drab-gray); chest, median portion of breast, and upper abdomen deeper brownish gray. the feathers with a V-shaped subterminal mark of dusky, these markings smaller, more sagittate (spot-like) on chest, larger and distinctly V-shaped on breast and upper abdomen; sides, flanks, under tail-coverts, thighs, and lower abdomen deep mummy brown, the sides intermixed with brownish gray and with indistinct dusky shaft-streaks; bill black, the under portion of mandible (except terminally) dull brownish white (in dried skin); legs and feet blackish brown; length (skin), 113; wing, 59; tail, 21; exposed culmen, 18; tarsus, 24; middle toe, 16.^a

Young.—Similar to the adult, but brown of upper parts broken by dusky crescentic terminal bars and central spots to feathers of pileum, and dusky terminal and subterminal bars to feathers of back, scapulars, and rump; lesser wing-coverts distinctly barred with dusky; middle coverts with a narrow blackish terminal bar, immediately preceded by a broader subterminal bar of light brown, this margined anteriorly by a narrow bar of dusky; greater coverts similarly but less distinctly marked; under parts very differently colored from adult, the whole surface (except chin and upper throat) strongly suffused with mummy brown, except along median line, the throat and chest regularly and distinctly barred with dusky, the sides and flanks also regularly but less distinctly barred, the median portion of breast and

^a One specimen (type of *M. orpheus*), from Pacuare, eastern Costa Rica; Juan Cooper. (No. 115037, coll. U. S. Nat. Mus.)

upper abdomen with broader, more spot-like bars; length (skin), 105; wing, 61; tail, 23; exposed culmen, 18; tarsus, 23; middle toe, 16.^a

Eastern Costa Rica (Pacuare, Talamanca).

Microcerculus luscini (not of Salvin) ZELEDON, Cat. Aves de Costa Rica, 1882, 3; Proc. U. S. Nat. Mus., viii, 1885, 105; Anal. Mus. Nac. Costa Rica, i, 1888, 105 (Pacuare).

Microcerculus daulias RIDGWAY, Proc. U. S. Nat. Mus., x, sig. 32, Aug. 6, 1888, 508 (Talamanca, Costa Rica; coll. U. S. Nat. Mus.).—ZELEDON, Anal. Mus. Nac. Costa Rica, i, 1888, 105.

Microcerculus orpheus RIDGWAY, Proc. U. S. Nat. Mus., xi, sig. 34, Sept. 20, 1889, 539 (Pacuare,^b Costa Rica; coll. U. S. Nat. Mus.).—ZELEDON, Anal. Mus. Nac. Costa Rica, i, 1888, 105.

MICROCERCULUS LUSCINIA Salvin.

PANAMA NIGHTINGALE WREN.

Similar to *M. daulias*, but smaller, with under parts darker and much more uniform.

Adult male.—Above plain deep vandyke brown (or between vandyke and mummy), becoming duller on pileum, where the feathers are usually indistinctly margined with dusky; tail and remiges uniform brownish black or blackish brown, the tertials more or less distinctly edged with vandyke brown; wing-coverts blackish brown or dusky, broadly margined with light vandyke or mummy brown; sides of head, including loreal, suborbital, auricular, and malar regions, plain brownish gray; chin and upper throat very pale plain brownish gray or dull grayish white; lower throat more decidedly gray, deepening on chest, breast, and upper abdomen into brownish mouse gray, the feathers more or less distinctly margined with brown, sometimes very faintly mottled or barred with brown or deeper gray; sides, flanks, thighs, under tail-coverts, and lower abdomen plain deep vandyke or mummy brown; bill black, the under side of mandible (except terminally) pale colored; legs and feet black or blackish brown; length (skins), 101–106.5 (103.5); wing, 58.5–59.5 (59.1); tail, 23.5–24.5 (24); exposed culmen, 17–18 (17.5); tarsus, 22.5–24.5 (23.5); middle toe, 14.5–15 (14.7).^c

Adult female.—Similar to the adult male, and perhaps not always distinguishable, but the single specimen examined is more strongly suffused with brown on the chest, breast, and upper abdomen, where the gray is largely overlaid with a superficial wash of mummy brown;

^a One specimen (type of *M. daulias*), from Talamanca, eastern Costa Rica; José C. Zeledon. (No. 68287, coll. U. S. Nat. Mus.)

^b Probably from some point on the Pacuare River, which is on the Atlantic side. In the original description the locality was erroneously ascribed to the Pacific side.

^c Three specimens.

length (skin), 112; wing, 57.5; tail (much worn), 16.5; exposed culmen, 17.5; tarsus, 22; middle toe, 16.5.^a

Young female.—Similar to adults, but brown of upper parts rather lighter and duller; dusky margins to feathers of pileum more distinct; scapulars and interscapulars also with narrow terminal margins of dusky; middle and greater wing-coverts with very small terminal spots of light buffy brown; brown of flanks, etc., lighter than in adults and indistinctly barred with dusky; gray of breast, etc., paler and broken by light-brown tips to the feathers.

Isthmus of Panama, from Panama Railroad to Chiriqui (Boquete), Veragua (Santa Fé; Santiago), and southwestern Costa Rica (Boruca).

Cyphorhinus bambla ? (not *Formicarius bambla* Boddaert) LAWRENCE, ANN. LYN. N. Y., vii, 1861, 320 (Lion Hill, Panama R. R.).

Cyphorhinus philomela (not of Salvin) LAWRENCE, ANN. LYN. N. Y., vii, 1862, 467 (Lion Hill, Panama R. R.).

Microcerculus philomela BAIRD, REVIEW AM. BIRDS, 1864, 114, part (Panama R. R.).

Microcerculus lusciniæ SALVIN, PROC. ZOOLOG. SOC. LOND., 1866, 69, 71; 1867, 134 (Santa Fé and Santiago, Veragua).—SALVIN and GODMAN, BIOL. CENTR.-AM., AVES, i, 1880, 77, pl. 5, fig. 4.—SHARPE, CAT. BIRDS BRIT. MUS., vi, 1881, 298.—RIDGWAY, PROC. U. S. NAT. MUS., xvi, 1893, 609 ("Burica," i. e., Boruca s. w. Costa Rica; descr. female; crit.).—CHERRIE, EXPL. ZOOLOG. MERID. COSTA RICA, 1893, 6 (Boruca; descr.); EXPL. ZOOLOG. VAL. RIO NARANJO, 1893, 9 (Boruca: descriptions).

[*Microcerculus*] *lusciniæ* SCLATER and SALVIN, NOM. AV. NEOTR., 1873, 6.

Microcerculus acutetus BANGS, PROC. NEW ENGL. ZOOLOG. CLUB, iii, JAN. 30, 1902, 56 (Boquete, south slope Volcan de Chiriqui, 5,000 ft. alt.; coll. E. A. and O. Bangs).

Genus LEUCOLEPIS Reichenbach.

Cyphorhinus^b (not *Cyphorhina* Lesson, 1843^c) CABANIS, in WIEGMANN'S ARCHIV. FÜR NATURG., x, pt. i, 1844, 282. (Type, *C. thoracicus* Tschudi.)

Cyphorhinus (emendation) SCLATER, CAT. AM. BIRDS, 1862, 19.

Leucolepis REICHENBACH, AVIUM SYST. NAT., 1850, pl. 57 (type, *Formicarius musicus* Boddaert).

Leucolepia (typographical error) RICHMOND, AUK, xix, JAN., 1902, 92, in text.

Small or medium sized Troglodytidae (wing, 58–70 mm.) with wedge-shaped compressed bill, the mesorhinium strongly elevated and arched; mandibular rami equal to or longer than gonys, strongly bent and deflexed basally; nostril small, circular, rimmed, opening through center of nasal fossa, and tail little, if any, more than half as long as wing.

Bill nearly as long as head, wedge-shaped, compressed, its depth at latero-frontal antiae equal to much more than one-third (sometimes

^a One specimen, from Panama.

^b "χῦφος gibba, ἐῖν nasus."

^c *Cyphorhina* Lesson, L'ECHO DU MONDE SAVANT, ser. 2, vii, June 15, 1843, col. 1068. (Type, *Podargus papuensis* Quoy and Gaimard.)

one-half) the distance from nostril to tip of maxilla, nearly double its width at same point; culmen (from base) equal to or longer than middle toe without claw, the basal portion (mesorhinium) elevated and strongly decurved posteriorly or arched, the remaining portion straight to near tip, where slightly decurved; gonys much shorter than distance from nostril to tip of maxilla, straight, ascending terminally, prominent basally; mandibular rami (unfeathered portion) equal to or longer than gonys, strongly bent and deflexed posteriorly; maxillary tomium straight, more or less distinctly notched subterminally, the rictus very strongly, but not abruptly, deflexed. Nostril very small, circular, rimmed, in central portion of nasal fossa. Rictal bristles obvious but very short; frontal feathers erect, distinct, but without bristly tip. Wing short, very concave beneath, much rounded; seventh, sixth, and fifth primaries longest; eighth equal to or longer than fourth; ninth shorter than first (sometimes shorter than secondaries), not more (sometimes less) than twice as long as tenth. Tail about half as long as wing, much rounded, the rectrices broadly rounded at tip. Tarsus much longer than culmen, about two-fifths as long as wing, or less, the acrotarsium distinctly scutellate, the planta tarsi booted; middle toe, with claw, shorter than tarsus (sometimes nearly as long); outer toe (without claw) reaching to slightly beyond subterminal joint of middle toe, its claw falling far short of base of middle claw; inner toe slightly shorter than outer; hallux (without claw) as long as outer toe (without claw), its claw much shorter than the digit; basal phalanx of middle toe adherent to both lateral toes for much the greater part of its length.

Coloration.—Above brown, the remiges and rectrices usually barred with dusky; beneath pale brownish or grayish, the throat tawny or rufous-chestnut, the flanks and under tail-coverts brown; sides of neck sometimes streaked with black and white.^a

Range.—Southern Honduras to Amazon Valley and western Ecuador.

KEY TO THE SPECIES AND SUBSPECIES OF *LEUCOLEPIS*.

a. Remiges and rectrices without blackish bars.

b. Lighter colored; above deep brown (between mummy and sepia); under parts of body russet-brown, becoming paler, more cinnamonaceous, medially. (Eastern Peru.).....*Leucolepis thoracicus* (extralimital)^b

^aThe single Central American species and its nearer South American allies have no black nor white streaks on side of neck, which is bright chestnut or chestnut-rufous, like auricular and malar regions, throat and chest.

^b*Cyphorhinus thoracicus* Tschudi, Wiegmann's Archiv. für Natürg., 1844, 282; Sharpe, Cat. Birds Brit. Mus., vi, 1881, 294.

The U. S. National Museum possesses one of Tschudi's original specimens, an adult in good condition.

- bb. Darker; above dark sooty brown, under parts of body dark sooty brown laterally, becoming dark chestnut medially. (Cauca Valley, Colombia.)

Leucolepis dichrous (extralimital)^a

- aa. Remiges and rectrices distinctly barred with black.

- b. Auricular region chestnut, like throat and chest; no buffy or cinnamon stripe along side of occiput and nape.

- c. Forehead sooty or sepia brown, like rest of pileum; auricular region wholly chestnut.

- d. Under parts of body deep tawny-brown or chestnut-brown.

- e. Darker; under parts of body deep chestnut-brown or mummy-brown; back more chestnut-brown. (Western Ecuador.)

Leucolepis phaeocephalus (extralimital)^b

The U. S. National Museum possesses a specimen of this form from Guayaquil.

- ee. Paler; under parts of body tawny-brown; back more olive-brown. (Cauca Valley, northwestern Colombia.)

Leucolepis brunescens (extralimital)^c

- dd. Under parts of body grayish brown, becoming deep brown on flanks. (Isthmus of Panama to southern Honduras.) *Leucolepis lawrencii* (p. 673)

- cc. Forehead chestnut; auricular region with a dusky-brown streak along upper margin. (Eastern Peru and adjacent parts of Bolivia.)

Leucolepis modulator (extralimital)^d

- bb. Auricular region brown, margined above by a broad stripe of cinnamon-buff. (Eastern Ecuador; eastern Peru?) *Leucolepis salvini* (extralimital)^e

The forms characterized above fall into four groups, which probably represent specific types, the others differing in minor particulars and therefore doubtless representing geographic forms or subspecies.

^a *Cyphorinus dichrous* Sclater and Salvin, Proc. Zool. Soc. Lond., 1879, 492, pl. 41 (Remedios, Province of Antioquia, Colombia; coll. P. L. Sclater); Sharpe, Cat. Birds Brit. Mus., vi, 1881, 294.

I have not seen this form.

^b *Cyphorinus phaeocephalus* Sclater, Proc. Zool. Soc. Lond., 1860, 291 (Esmeraldas, w. Ecuador; coll. P. L. Sclater); Sclater and Salvin, Exotic Orn., pl. 22; Sharpe, Cat. Birds Brit. Mus., vi, 1881, 292.

^c *Cyphorinus brunescens* Sharpe, Cat. Birds Brit. Mus., vi, 1881, 293 (Remedios, Province of Antioquia, Colombia; coll. Salvin and Godman).

This form I have not seen. One of the supposed characters given in the original description fails in the light of a specimen of *L. phaeocephalus*, from Guayaquil, which has the primary coverts barred. The form seems to be a connectant between *L. phaeocephalus* and *L. lawrencii*.

^d *Thryothorus modulator* D'Orbigny, Voy. Amér. Mérid., Ois., 1839, 230 (Bolivia).—*Cyphorinus modulator* Sclater, Proc. Zool. Soc. Lond., 1858, 63; Sharpe, Cat. Birds Brit. Mus., vi, 1881, 291, pl. 18, fig. 2.—*Sarochalinus rufogularis* Des Murs, in Castelnau's Voy., 1855, 49, pl. 17, fig. 2.

This form I have not seen.

^e *Cyphorinus salvini* Sharpe, Cat. Birds Brit. Mus., vi, 1881, 292, pl. 18, fig. 1 (Rio Napo, e. Ecuador; coll. Brit. Mus.).

The U. S. National Museum possesses the skin of a young but full-grown bird from the headwaters of the Huallaga River, eastern Peru, which seems to be referable to this species, having the brown auriculars and conspicuous buffy stripe along side of occiput and nape, as described and figured by Sharpe. Without comparison with a young example of *L. salvini*, however, the identification is uncertain.

According to this view of their relationships their nomenclature would be as follows:

1. *Leucolepis thoracicus*.
 - a. *Leucolepis thoracicus thoracicus*.
 - b. *Leucolepis thoracicus dichrous*.
2. *Leucolepis phaeocephalus*.
 - a. *Leucolepis phaeocephalus phaeocephalus*.
 - b. *Leucolepis phaeocephalus brunnescens*.
 - c. *Leucolepis phaeocephalus lawrencii*.
3. *Leucolepis modulator*.
4. *Leucolepis salvini*.

LEUCOLEPIS LAWRENCII (Sclater).

LAWRENCE'S MUSICIAN WREN.

Adult male.—Pileum, hindneck, back, scapulars, rump, and upper tail-coverts plain rich warm-sepia brown, sometimes with very indistinct narrow bars of dusky, especially on back; wings and tail rather lighter or clearer brown (the secondaries sometimes decidedly more rufescent), the remiges and rectrices distinctly barred with black, the greater wing-coverts more narrowly (sometimes very indistinctly) barred with dusky; auricular, suborbital, and malar regions, throat, chest, and anterior portion of sides of neck, uniform bright chestnut or ferruginous-chestnut, the whole chin^a and supraloral region sometimes also of this color;^b sides of neck (except near auricular region) and sides of chest and breast lighter brown than upper parts, becoming darker and richer (nearly mummy brown) on flanks; median portion of breast and abdomen brownish gray; under tail-coverts deep russet or russet-brown, sometimes with darker bars and paler tips; bill black or dusky, the under side of mandible more or less extensively light colored; iris brown; legs and feet dark brownish; length (skins), 105–128 (135.6); wing, 62.5–67.5 (65.2); tail, 29.5–33.5 (31.3); culmen, from base, 18.5–20.5 (19.6); tarsus, 22.5–25.5 (24.2); middle toe, 15.5–18.5 (17.2).^c

Adult female.—Similar to the male, and not always distinguishable, but averaging slightly lighter brown above and with median under parts paler (sometimes pale buffy gray or grayish buff); length (skins), 110.5–222 (113.6); wing, 59–66 (62.4); tail, 26.5–33 (29.7); culmen,

^a Usually, but by no means always, the chin is dusky, at least laterally, as are also the anterior portion of the malar region and the anterior margin of the auricular region.

^b Sometimes the chestnut not only occupies the supraloral region, but extends, narrowly, over the eyes, and sometimes the forehead is more or less strongly tinged with chestnut.

^c Six specimens.

from base, 17–19.5 (18.3); tarsus, 21–24 (22.9); middle toe, 16–19 (17.2).^a

Young.—Similar to adults, but texture of plumage much more lax, blackish bars on wings and tail more irregular and less sharply defined, and back and scapulars always (?) narrowly barred with dusky.

Isthmus of Panama (Chepo; Lion Hill; Panama; Nata-Coclé), eastern Costa Rica (Talamanca; Valza; Angostura; Pacuare; Matina), eastern Nicaragua (Los Sábalos; Santo Domingo, Chontales^b), and southeastern Honduras (Segovia River).

Cyphorhinus cantans (not *Turdus cantans* Gmelin) LAWRENCE, Ann. Lyc. N. Y., vii, 1861, 293 (Lion Hill, Panama R. R.).

Cyphorhinus lawrencii LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., viii, 1863, 5 (Lion Hill Station, Panama R. R.; coll. G. N. Lawrence; ex Sclater, manuscript).—BAIRD, Review Am. Birds, 1864, 113 (Lion Hill).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 345 (Lion Hill); Exotic Orn., pt. iii, 1867, 41, pl. 21 (Chepo, Isthmus Panama); Nom. Av. Neotr. 1873, 6.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 75 (Angostura and Valza, Costa Rica; Lion Hill and Chepo, Panama R. R.).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 294 (Panama; Chepo).—NUTTING, Proc. U. S. Nat. Mus., vi, 1884, 398 (Los Sábalos, Nicaragua; habits).

[*Cyphorhinus*] *lawrencii* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 6.

Cyphorhinus lawrencei LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 92 (Angostura, Costa Rica).—ZELEDON, Cat. Aves de Costa Rica, 1882, 3; Proc. U. S. Nat. Mus., viii, 1885, 105; Anal. Mus. Nac., Costa Rica, i, 1887, 105 (Pacuare and Matina, Costa Rica).

[*Cyphorhinus*] *lawrencei* GRAY, Hand-list, i, 1869, 193, no. 2660.

Cyphorhinus lawrencii RIDGWAY, Proc. U. S. Nat. Mus., x, 1888, 585 (Segovia River, Honduras).—BANGS, Proc. New Engl. Zool. Club, ii, 1900, 27 (Loma del Leon, Panama R. R.).

(?) *Cyphorhinus richardsoni* SALVIN, Bull. Brit. Orn. Club, no. vi, Mar. 1, 1893, p. xxxii (Santo Domingo, Chontales, Nicaragua; coll. Salvin and Godman); Ibis, sixth ser., v, Apr., 1893, 263 (do.).^b

^a Ten specimens.

Specimens from different localities compare in average measurements as follows:

Locality.	Wing.	Tail.	Culmen, from base.	Tarsus.	Middle toe.
MALES.					
Five adult males from Isthmus of Panama	64.9	31.1	19.5	23.9	17
One adult male from eastern Costa Rica (Talamanca)	66.5	32.5	20	25.5	18
FEMALES.					
Six adult females from Isthmus of Panama	62.8	29.5	18.1	23	17.3
Three adult females from eastern Costa Rica (Talamanca, 2) and Nicaragua (Los Sábalos, 1)	62.8	30.5	19.5	23.3	17.3
One adult female from southern Honduras (Segovia R.)	59	29	17	21	16

^b In view of the fact that specimens from Los Sábalos on the San Juan River and from the Segovia River, Honduras, are not distinguishable from Panama specimens, that some specimens from the Isthmus of Panama have the supraloral region chestnut, and that the range of individual variation in shades of color is considerable among specimens from any one locality, I feel reasonably sure that the supposed new form from Chontales, named *Cyphorhinus richardsoni* by Salvin and Godman, was based on an individual or seasonal variation of the present bird.

Family CINCLIDÆ.

THE DIPPERS.

Aquatic, slender-billed, "ten-primaried" acutiplantar Oscines, with plump body, short tail, short and very concave wings; rather long booted tarsi; plumage very compact, soft, and underlaid with down, and feathers of the anterior portion of the head short and dense, without the usual bristly tips, even the rictal bristles being absent.

Bill much shorter than head, slender, much compressed; culmen nearly straight for most of its length, more or less concave subbasally, the tip rather abruptly decurved; gonys nearly straight, ascending terminally, its base forming a distinct angle decidedly anterior to anterior end of nostril; tomia nearly straight, that of the maxilla distinctly notched subterminally, both being sometimes indistinctly serrate or nicked for terminal half (except in South American species only?). Nostril very narrow, longitudinal, opening as a narrow slit in the lower edge of the nasal fossæ, overhung by a broad membranous operculum; feathering of lores and frontal antiæ not bristly, but soft and dense, the latter advancing on sides of the maxilla to about the middle of the nasal fossæ. Rictal bristles obsolete. Wing short, very concave beneath, with tip comparatively long and stiff, the longest primaries exceeding secondaries by more than two-thirds the length of the tarsus; ninth, eighth, and seventh, or eighth, seventh, and sixth, primaries longest, the ninth sometimes nearly equal to eighth sometimes shorter than fifth, the tenth much less than half, sometimes less than one-third, as long as ninth. Tail decidedly more than half as long as wing, even or slightly rounded, the rectrices broad and rounded at tip. Tarsus decidedly longer than middle toe with claw, more than one-third as long as wing, the acrotarsium booted, except extreme lower portion; lateral toes equal in length, reaching to penultimate joint of middle toe, their claws falling short of base of middle claw; hallux about as long as lateral toes, but much stouter, its claw much shorter than the digit; basal phalanx of middle toe with its basal half united to outer toe, a little less to inner toe; claw of middle toe with its inner edge more or less produced, sometimes slightly nicked or pectinate. Head, neck, and body covered with down; plumage very dense though soft.

Coloration.—Colors plain, gray or brown predominating, this never relieved by bars or other conspicuous markings, though parts of the plumage are sometimes squamately marked with darker margins to the feathers; throat and breast, pileum, or part of back sometimes white; sexes alike, but young different in color from adults, being much paler below.

Nidification.—Nest a bulky oven-shaped mass of green moss with opening in one side, placed among rocks near waterfalls, usually in contact with their spray. Eggs immaculate white.

Range.—Mountain districts of Palearctic Region and western America (Alaska to Argentina).

The Dippers are apparently allied to both the Thrushes and the Wrens, perhaps more nearly to the latter, to which they bear a closer resemblance in their abbreviated form and the character of their nest and eggs, though they differ in their booted tarsi (in which they agree with the Thrushes), more pointed wing, and other characters. In their aquatic habits and covering of down they differ from all other Passerine birds.

They are found only in mountainous or hilly districts, where they frequent swift, rocky streams, in which they seek their food, consisting of water insects and the spawn of fishes. They are at home in the water, under which they propel themselves by motion of their wings; in short, they fly through the water as readily as through the air. Their nest is a domed structure, usually placed behind or near a waterfall, covered with moss, and kept green by the spray which constantly moistens it.

The distribution of the family is peculiar. It occurs in Europe and temperate Asia, through western North America, and thence southward through the Andes Mountains to the southern part of South America. Only one genus is recognized, six species of which (nearly one-half of those known) are found in America, all of them peculiar.

Genus CINCLUS Borkhausen.

Cinclus BORKHAUSEN, Deutsche Fauna, i, 1797, 300. (Type, *C. hydrophilus* Borkhausen, = *Sturnus cinclus* Linnæus.)

Aquatilis MONTAGUE, Orn. Dict., Suppl. Cat., 1813, 2. (Type, *Cinclus aquaticus* Bechstein.)

Hydrobata VIEILLLOT, Nouv. Dict. d'Hist. Nat., i, 1816, 219. (Type, *H. albicollis* Vieillot.)

Hydrichla BILLBERG, Synop. Faunæ Scand., i, pt. 2, 1828, 75. (Type, *Sturnus cinclus* Linnæus.)

The characters of this genus are those of the Family Cinclidæ, as given on page 675.

KEY TO THE AMERICAN SPECIES AND SUBSPECIES OF CINCLUS.

- a. No white on inner webs of remiges. (North American species.)
 - b. Under parts not white.
 - c. Under parts plain slate-gray or ash gray, or with feathers narrowly margined at tips with whitish.
 - d. Head and neck distinctly brown; upper parts slate color, under parts slate-gray.
 - e. Darker, with head and neck deep sepia brown. (Mountains of Mexico and Guatemala.) *Cinclus mexicanus mexicanus*, adults (p. 677)
 - ee. Paler, with head and neck grayish brown. (Mountains of western North America, from New Mexico, Arizona, and California to Alaska.)
Cinclus mexicanus unicolor, adults (p. 679)

- CINCLUS MEXICANUS MEXICANUS** Swainson

MEXICAN DIPPER.

Adults in spring and summer.—Head and neck plain sepia brown, darker on the pileum, paler on chin and throat; rest of plumage (except larger wing-coverts, remiges, and rectrices) plain dull slate color, the under parts slightly paler and more brownish, anteriorly gradually merging into the brown of foreneck; greater wing-coverts, alula, primary coverts, remiges, and rectrices dull blackish slate or dusky margined with slate color; larger under wing-coverts, longer under tail-coverts, and (at least in more early spring specimens) feathers of lower abdomen and posterior flanks margined terminally with grayish white or brownish white; bill black; iris brown; legs and feet light horn brownish (in dried skins).

^a *Cinchus rivularis* Bangs, Proc. Biol. Soc. Wash., xiii, Nov. 11, 1899, 105 (Chirua, province of Santa Marta, Colombia, 7,000 feet alt.; coll. E. A. and O. Bangs).

^b *Cinclus leucocephalus* Tschudi, in Wiegmann's Archiv. für Naturg., 1844, 279.—Baird, Review Am. Birds, 1864, 60.—Salvin, Ibis, 1867, 121 (monogr.).—Sharpe, Cat. Birds Brit. Mus., vi, 1881, 321.

^c *Cinclus leuconotus* Sclater, Proc. Zool. Soc. Lond., 1857, 274 (Bogota, Colombia; coll. P. L. Sclater); Cat. Am. Birds, 1862, 10, pl. 2.—Baird, Review Am. Birds, 1864, 60.—Salvin, Ibis, 1867, 122 (monogr.).—Sharpe, Cat. Birds Brit. Mus., vi, 1881, 320.

^d *Cinclus schulzi* Cabanis, Ornith. Centralb., vii, 1882, 182 (Cerro Vayo de Tucuman, Argentina; coll. Berlin Mus.?); Journ. für Orn., 1883, 102, pl. 2, fig. 3.—Sclater and Hudson, Argentine Orn., i, 1888, 11, pl. 2.

Adults in autumn and winter.—Similar to the spring and summer plumage, but feathers of nearly all under parts more or less distinctly (always narrowly) margined with whitish, the larger wing-coverts and tertials (sometimes also secondaries, innermost primaries, and rectrices) also narrowly margined at tips with white, a narrow whitish mark on each eyelid, and the bill horn brownish.

Young in first autumn and winter.—Very similar to adults of corresponding season and perhaps not always distinguishable, but usually (?) with the whitish markings more distinct.

Young (first plumage).—Similar to autumnal and winter adults, but under parts strongly suffused or indistinctly streaked with cinnamon-buff or fawn color, and without whitish terminal margins to the feathers; brown of head and neck (especially on chin and throat) less pronounced; larger wing-coverts, narrowly tipped with light brownish gray instead of whitish, and white terminal margins of remiges much narrower, sometimes obsolete.

Adult male (?).—Length (skins), 160–178 (177); wing, 87–92 (90); tail, 48–52 (49.3); exposed culmen, 17–18 (17.5); tarsus, 28–31 (29.3); middle toe, 20–22.5 (21.5).^a

Adult female.—Length (skins), 157–174 (165); wing, 82–89 (86); tail, 43–50 (46.7); exposed culmen, 16–17 (16.2); tarsus, 28–29 (28.6); middle toe, 19.5–21 (20).^b

Mountains of Mexico and Guatemala northward to States of Sonora (Chuchui-chupa) and Chihuahua (Barranca, Jesus Maria, etc.). Highlands of Costa Rica?

Cinclus mexicanus SWAINSON, Philos. Mag., new ser., ii, May, 1827, 368 (Temascaltepec, Mexico; coll. Bullock Mus.).—SCLATER, Proc. Zool. Soc. Lond., 1859, 362 (Jalapa, Vera Cruz); Cat. Am. Birds, 1862, 10, part (in synonymy).—BAIRD, Review Am. Birds, 1864, 60, part (Jalapa).—SALVIN, Ibis, 1867, 120, part (monogr.).—SUMICHRIST, Mem. Bost. Soc. N. H., i, 1869, 544 (temperate and alpine regions Vera Cruz, 1,000 to 2,500 meters).—COOPER, Orn. Cal., 1870, 25, part (Mexico).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 56, part (Mexico; Guatemala).—COUES, Birds N. W., 1874, 10, part (Mexico; in synonymy); Birds Col. Val., 1878, 89, part (do.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1879, 44 (Tierra Fria and Temascaltepec, Mexico; Oaxaca; Jalapa, etc., Vera Cruz; ridge above Totonicapam, Guatemala).—SHARPE, Cat. Birds Brit. Mus., vi, 1881, 317, part (Mexico; Guatemala).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 701, part (Mexico; Guatemala).—(?) CHERRIE, Auk, viii, 1891, 395 (mountains of Costa Rica; common c).—ALLEN, Bull. Am. Mus. N. H., v, 1893, 41 (Chuchui-chupa, Sonora).

Cinclus mexicanus? SALVIN, Ibis, 1886, 190 (ridge above Totonicapam, Guatemala, 10,000 ft. alt.).

^aThree specimens; one with sex not determined (from Jalapa, Vera Cruz; no. 35749, coll. Acad. Nat. Sci. Phila.).

^bSix specimens, from Chihuahua (Barranca, Jesus Maria) and Sonora (Chuchui-chupa).

^cNo Costa Rican specimens seen by me. Possibly they represent a different form.

[*Cinclus*] *mexicanus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 3.

[*Cinclus*] *mexicanus* COUES, Key N. Am. Birds, 2d ed., 1884, 255, part (Mexico; Guatemala); 5th ed., i, 1903, 260, part.—RIDGWAY, Man. N. Am. Birds, 1887, 538, part (Mexico; Guatemala).

[*Cinclus mexicanus*] var. *mexicanus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 56, part.

[*Hydrobata*] *mexicana* GRAY, Hand-list, i, 1869, 267, no. 3905, part.

CINCLUS MEXICANUS UNICOLOR (Bonaparte).

AMERICAN DIPPER.

Similar to *C. m. mexicanus*, but paler, with color of head and neck decidedly less brown; young with under parts very much paler, extensively suffused or mottled with buffy white or very pale cinnamon-buff, the chin and throat mainly (sometimes entirely) white or buffy white; under wing-coverts with much more white (mostly of this color).

Adult male.—Length (skins), 155–192 (173); wing, 83–100 (90.9); tail, 43–56 (49.1); exposed culmen, 16–19 (17.3); tarsus, 25–31 (28.8); middle toe, 18–23.5 (21.3).^a

Adult female.—Length (skins), 148–182 (166.9); wing, 79–92 (89.1); tail, 41–55 (46.7); exposed culmen, 16–18 (17.2); tarsus, 26–30 (27.9); middle toe, 18.5–22 (19.9).^b

Mountains of western North America, from Rocky Mountains (including Black Hills of South Dakota) to the Pacific coast, and from the

^aTwenty-two specimens.

^bTwenty-five specimens.

Series from different geographic areas average respectively as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Nine adult males from California	89.5	47.9	17.4	29.3	21.3
Three adult males from Vancouver Island and southern Alaska.....	86.3	49	17.2	28.3	21
Four adult males from Alaska (north and west of peninsula) Six adult males from Rocky Mountains (Montana to New Mexico)	89.7	48.8	16.7	28	20.2
	96.1	51.5	17.5	30.3	22.3
FEMALES.					
Ten adult females from California	83.1	45.1	17	27.7	19.8
One adult female from Nevada.....	83	44	16	26.5	20
One adult female from eastern Oregon (Fort Klamath).....	89	52	16.5	28	21
One adult female from British Columbia.....	84	48	17.5	28	20
Four adult females from Alaska (north and west of penin- sula)	86.5	47.6	17.5	28	20.1
Eight adult females from Rocky Mountains (Montana to New Mexico).....	88.5	47.5	17.4	28.4	21.2

I have not been able to satisfy myself as to any difference in coloration, though possibly those from the Pacific coast (which are smaller than those from the Rocky Mountain district) are slightly darker, with the head and neck less distinctly brownish.

Mexican boundary (western Texas to southern California), and northern Lower California to northern Alaska. (Resident throughout, even in Alaskan localities.)

- Cinclus pallarii* (not of Temminck) BONAPARTE, Ann. Lyc. N. Y., ii, 1826, 439; Zool. Journ., ii, 1827, 52; Am. Orn., ii, 1828, 173, pl. 16, fig. 1.
- Cinclus mexicanus* (not of Swainson, 1827) SCLATER, Cat. Am. Birds, 1862, 10, part (New Mexico).—BAIRD, Review Am. Birds, 1864, 60, part.—SALVIN, Ibis, 1867, 120, part (monogr.).—COUES, Proc. Ac. Nat. Sci. Phila, xviii, 1866, 66 (Arizona); Check List, 1873, no. 19; 2d ed., 1882, no. 30; Birds N. W., 1874, 10; Birds Col. Val., 1878, 89; Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 552 (Chief Mountain Lake, Montana).—COOPER, Orn. Cal., 1870, 25.—ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 148 (Colorado City), 161 (Mount Lincoln, Colorado), 166 (Ogden, Utah), 174 (Utah; Colorado).—MERRIAM, Rep. U. S. Geol. Surv. Terr. for 1872 (1873), 671, 713 (Ogden, Utah; Mystic Lake, Montana; habits; descr. nest); Auk, xi, 1894, 258 (20 m. s. of Monterey, California; several pairs, Mar.).—DALL, Proc. Cal. Acad. Sci., 1873 (Unalaska I., Alaska).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 56, pl. 5, fig. 1.—YARROW and HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 6 (Provo, etc., Utah; habits).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 40 (Utah; resident), 98 (White Mts., Arizona; Tulerosa, New Mexico), 155 (Arizona); Orn. Rep. Wheeler's Surv., 1876, 227 (Mount Whitney, California); Zool. Expl. W. 100th Merid., 1875, 159 (Provo R., Utah, White Mts., Arizona, Diamond Creek, New Mexico, and El Paso Co., Colorado; habits).—RIDGWAY, Orn. 40th Parallel, 1877, 406 (localities in Nevada and Utah; habits); Nom. N. Am. Birds, 1881, no. 19.—BELDING, Proc. U. S. Nat. Mus., i, 1879, 397 (Calaveras Co., California; habits).—BREWSTER, Bull. Nutt. Orn. Club, iv, 1879, 39 (descr. young); vii, 1882, 76 (Chiricahua Mts., Arizona; habits).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1879, 44, part.—MINOT, Bull. Nutt. Orn. Club, v, 1880, 224 (Boulder Co., Colorado; habits; descr. nest).—SHARP, Cat. Birds Brit. Mus., vi, 1881, 317, part.—DREW, Bull. Nutt. Orn. Club, vi, 1881, 86 (San Juan Co., Colorado, resident; habits).—WILLIAMS, Bull. Nutt. Orn. Club, vii, 1882, 118 (Gold Run, Montana; descr. nest).—TURNER, Auk, ii, 1885, 157 (Nearer Islands, Alaska, 1 spec., Aug.).—BATCHELDER, Auk, ii, 1885, 234 (Las Vegas, New Mexico; habits).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 701.—TOWNSEND, Proc. U. S. Nat. Mus., x, 1887, 225 (McCloud R., etc., California; habits).—COOKE, Bird Migr. Mss. Val., 1888, 264 (Nebraska, "abundant in Otoe Co.;"^a Black Hills, Dakota); Bull. 37, Col. State Agric. Coll., 1897, 118 (Colorado, 8,000 ft. upward in summer); Bull. 44, 1898, 169 (Boulder, Clear Creek, etc., Colorado, and upward to 11,500 ft.).—BENDIRE, Auk, vi, 1889, 75 (descr. peculiar nest from Boulder, Colorado).—CHAPMAN, Bull. Am. Mus. N. H., iii, 1890, 151 (Ducks, British Columbia).—FANNIN, Check List Birds Brit. Col., 1891, 42.—NEHRING, Our Native Birds, i, 1893, 72.—MITCHELL, Auk, xv, 1898, 310 (San Miguel Co., New Mexico, breeding chiefly above 8,000 ft.).—GRINNELL (J.), Pacific Coast Avifauna, no. 6, 1900, 58 (Kowak Valley, Alaska); Condor, iii, 1901, 22 (Kadiak), 23 (Iak Lake, Prince William Sound).—BISHOP, North Am. Fauna, no. 10, 1900, 92 (Glacier and Unalaska, Alaska).—OSGOOD, North

^a Otoe County, Nebraska, is in the extreme eastern portion of the State, bordering the Missouri River; it is in the prairie region, a country different as possible from that inhabited by the present species. It therefore seems almost certain that an error has been made in the record cited.

- Am. Fauna, no. 21, 1901, 80 (near Hope, Kenai Peninsula, Alaska).—
BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 432.
- [*Cinclus*] *mexicanus* COUES, Key N. Am. Birds, 1872, 77.
- C[inclus] mexicanus* HENSHAW, Orn. Rep. Wheeler's Surv., 1879, 287 (e. slope Sierra Nevada; habits).—COUES, Key N. Am. Birds, 2d ed., 1884, 255, part; 5th ed., i, 1903, 260, part.—RIDGWAY, Man. N. Am. Birds, 1887, 538, part.
- [*Cinclus mexicanus*] var. *mexicanus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 56, part.
- Cinclus mexicana* ALLEN, Am. Nat., v, 1872, 396.
- Hydrobata mexicana* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 229; Cat. N. Am. Birds, 1859, no. 164.—HENRY, Proc. Ac. Nat. Sci. Phila., xi, 1859, 106 (New Mexico).—XANTUS, Proc. Ac. Nat. Sci. Phila., xi, 1859, 190 (Fort Tejon, California).—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 175 (localities in Washington; habits; descr. nest).—BLAKISTON, Ibis, 1863, 60 (Athabasca R.).—BROWN, Ibis, 1868, 420 (Vancouver I.).—DALL and BANNISTER, Trans. Chicago Acad. Sci., i, 1869, 277 (Nulato, Alaska, Jan., Feb., Mar.).—AIKEN, Proc. Bost. Soc. N. H., xv, 1872, 194 (Sherman, Wyoming).
- [*Hydrobata*] *mexicana* GRAY, Hand-list, i, 1869, 267, no. 3905, part.
- Cinclus unicolor* BONAPARTE, Zool. Journ., iii, 1827, 52, in text (Lake Athabasca, Athabasca^a); Geog. and Comp. List, 1838, 18; Consp. Av., i, 1850, 252.
- H[ydrobata] unicolor* GRAY, Gen. Birds, i, 1846, 215.
- Cinclus americanus* SWAINSON, Fauna Bor.-Am., ii, 1831, 173 (Rocky Mts., British America).—NUTTALL, Man. Orn. U. S. and Can., i, 1832, 569.—AUDUBON, Orn. Biog., iv, 1838, 493; v, 1839, 303, pls. 370, 435; Synopsis, 1839, 86; Birds Am., oct. ed., ii, 1841, 182, pl. 137.—GAMBEL, Proc. Ac. Nat. Sci. Phila., iii, 1846, 114 (Rocky Mts.).—McCALL, Proc. Ac. Nat. Sci. Phila., v, 1851, 216 (Texas).—HEERMANN, Journ. Ac. Nat. Sci. Phila., ii, 1853, 264 (California; habits); Rep. Pacific R. R. Surv., x, 1859, 44 (n. California; Tejon Pass, s. California).—HENRY, Proc. Ac. Nat. Sci. Phila., vii, 1855, 310 (New Mexico).—NEWBERRY, Rep. Pacific R. R. Surv., vi, 1857, 80 (Cascade Mts., Oregon; habits).
- C[inclus] americanus* GAMBEL, Journ. Ac. Nat. Sci. Phila., ii, 1847, 43 (Rocky Mts.).
- Cinclus mortonii* TOWNSEND, Narrative, Apr., 1839, 339 ("near Fort McLoughlin, on the n. w. coast of America, in latitude about 49° N.;" cites Audubon's Birds of America, iv, pl. 435).
- Cinclus townsendi* "Audubon" TOWNSEND, Narrative, Apr., 1839, 340 (vicinity of Fort Vancouver, Washington).

CINCLUS ARDESIACUS Salvin.

OOSTA RIGAN DIPPER.

Similar to *C. mexicanus*, but smaller, with general color lighter and clearer gray, head less brown, and young with under parts mostly white.

Adults (sexes alike).—Pileum and loreal region brownish slate color; rest of upper parts plain slate-gray, gradually shading on hindneck into the darker and browner color of pileum; larger wing-coverts,

^a "Inhabits near the Rocky mountains, on the Athapescow Lake, probably [also] northeastern Asia."

remiges, and rectrices dull blackish slate or slate-black, margined with slate-gray (these edgings obsolete on primaries and rectrices in worn plumage); sides of head similar in color to pileum, but slightly paler, relieved by a whitish mark on each eyelid; malar region, chin, and throat plain light brownish gray (drab-gray), gradually darkening above into the deeper color of auriculars, etc., posteriorly changing gradually into the clear light gray (nearly no. 6) of the under parts, of which the sides, flanks, and under tail-coverts are slightly darker (nearly as dark as upper parts), the longer under tail-coverts indistinctly tipped with pale brownish or dull brownish white; bill black in breeding season, more brownish at other seasons; iris brown; legs and feet pale brownish (in dried skins).^a

Young.—Color of upper parts as in adults, but pileum gray, like back, etc., and larger (middle and greater) wing-coverts and tertials narrowly tipped with whitish; under parts dull white (the feathers pale gray beneath the surface), the sides and flanks pale gray; bill horn brownish, with basal half of mandible paler; legs and feet pale brownish yellow (in dried skins).

Adult male.—Length (skins), 148–178 (162.7); wing, 81–88 (85); tail, 39–47.5 (44.5); exposed culmen, 16.5–17 (16.7); tarsus, 30–32 (31.2); middle toe, 21.5–22 (21.7).^b

Adult female.—Length (skins), 149–161 (154); wing, 79–85 (81); tail, 40–45 (42.2); exposed culmen, 17–18 (17.5); tarsus, 29.5–31 (30.6); middle toe, 20.5–22 (21.3).^c

Mountains of Costa Rica (Dota Mountains), Chiriqui (Volcan de Chiriqui; Boquete), and Veragua (Cordillera de Tolé).

Cinclus ardesiacus SALVIN, Ibis, 2d ser., iii, Jan., 1867, 121, pl. 2 (Cordillera de Tolé, Veragua; coll. Salvin and Godman); Proc. Zool. Soc. Lond., 1867, 134 (Cordillera de Tolé; crit.).—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 92 (Dota Mts., Costa Rica).—FRANTZIUS, Journ. für Orn., 1869, 290 (Dota Mts.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1879, 45.—SHAPE, Cat. Birds Brit. Mus., vi, 1881, 319.—ZELEDON, Cat. Aves de Costa Rica, 1882, 2; Proc. U. S. Nat. Mus., viii, 1885, 105; Anal. Mus. Nac. Costa Rica, i, 1887, 105 (Santa Maria de Dota).—BANGS, Proc. New Engl. Zool. Club, iii, 1902, 51 (Volcan de Chiriqui, 4,000 to 7,500 ft., and Boquete, Chiriqui).

[*Cinclus*] *ardesiaceus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 3.

[*Cinclus*] *ardesiaceus* RIDGWAY, Man. N. Am. Birds, 1887, 538.

[*Cinclus mexicanus*] var. *ardesiaceus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 56.

[*Hydrobata*] *ardesiaca* GRAY, Hand-list, i, 1869, 267, no. 3911.

^aIn one specimen, from Boquete, Chiriqui, the legs and feet are black, the color being pale brownish, as usual, in six other skins obtained at the same time in the same locality.

^bThree specimens.

^cSix specimens.

Family CHAMÆIDÆ.

THE WREN-TITS.

Small sub-terrestrial "ten-primaried" acutiplantar Oscines with the bill much shorter than middle toe without claw, compressed, and strongly curved above; nostrils exposed, operculate; rictal bristles distinct; tarsus much longer than middle toe and claw (nearly twice as long as middle toe without claw); wing short (little more than twice as long as tarsus), excessively rounded, the ninth primary very much shorter than secondaries, the eighth about equal to the first; tail much longer than wing, graduated for more than one-third its length; plumage very lax, of plain uniform colors.

Bill much shorter than head (length from rictus about equal to middle toe without claw), its greatest depth equal to a little less than half the length of the exposed culmen, its width at base decidedly greater than its depth, but in middle portion (at anterior end of nasal fossæ) the width much less than the depth; culmen strongly curved; maxillary tomium faintly concave for anterior half, without perceptible subterminal notch; gonys faintly convex, its basal angle directly beneath the anterior end of the nasal fossæ; nasal fossæ very large, reaching more than one-third the distance from frontal antiæ to tip of maxilla, entirely unfeathered; nostrils large, occupying lower and lower-anterior portion of nasal fossæ, overhung by a broad, convex operculum which (as in Certhiidae) does not reach to anterior end of nasal fossæ. Rictal bristles well developed, the latero-frontal bristles less so, although the longer ones reach quite to the anterior end of the nostrils; feathers of chin and upper throat terminated by distinct though fine bristles. Wing rather short, very much rounded; fifth, fourth, and third primaries longest, the tenth about half as long as eighth, the latter about as long as secondaries, the ninth very much shorter. Tail much longer than wing, graduated for nearly half its length, but the two middle pairs of rectrices about equal in length, the third pair but little shorter; rectrices rather narrow, of nearly equal but slightly increasing width to the rounded tip. Tarsus very long (nearly half as long as wing, about one-third as long as tail); acrotarsium encroaching but little on outer side of tarsus, divided into eight segments, of which the third, fourth, and fifth, from above, are much the longest, each being about equal in length to the distance from nostril to tip of maxilla; middle toe, without claw, more than half as long as tarsus, its basal phalanx adherent for half its length to outer toe, for slightly less to inner toe; outer toe slightly longer than inner, its claw scarcely reaching to base of middle claw, that of the inner toe falling decidedly short; hallux about equal in length to inner toe but much stouter, its claw decidedly shorter than the digit.

Coloration.—Plain olive or olive-brown above, sometimes becoming grayish on head; beneath buffy or cinnamonaceous, obsoletely streaked anteriorly with grayish; plumage very lax, the pileum subcrested.

Nidification.—Nest in low bushes, of the usual open or cup-shaped type, lined with hairs; eggs (3 to 5) plain pale blue.

Range.—California and coast of Oregon. (Monotypic.)

Although the characters of the single genus which constitutes this family are in the main intermediate between those of the Paridæ and Troglodytidæ they are not all so, and there can be no question that it is an isolated type and should, to have consistent rank with other Oscine groups, be regarded as a distinct family. This is clearly the case so far as American and European groups are concerned; but it is possible that some so-called "Timeliine" form of central or southern Asia may be found to be nearly related.

The osteological structure of *Chamaea* has been carefully studied both by Dr. Shufeldt^a and Mr. Lucas,^b and they agree that of the several genera belonging to the Paridæ and Troglodytidæ with which they compared it, ^c *Chamaea* comes nearest in its osteological characters to *Psaltriparus*. Mr. Lucas summarizes the results of his investigations as follows:

Craniologically *Chamaea* is much like *Psaltriparus*, and in those points in which *Psaltriparus* differs from *Parus*, by just so much does it approach *Chamaea*.

This bird has an open interorbital septum, a large cardiform vacuity at the exit of the olfactory nerves, no maxillo-premaxillary nor cranio-facial hinge, elongate elliptical narial openings, and the external process of the nasal continued but a short distance along the premaxillary.

All these characters, save the last, are found in the Wrens as well as in *Psaltriparus*, and probably in numberless other Passeres and simply illustrate the great similarity of structure obtaining in the order.

In the Wrens, the external process of the nasal runs nearly the entire length of the narial opening, there is usually a small, laminar lachrymal present, and the maxillo-palatines have a peculiar hamate form and are nonpneumatic.

In *Chamaea*, as in the Paridæ, the maxillo-palatines are pneumatic although the shape of these processes differs in the two groups.

The shoulder girdle of *Chamaea* is extremely feeble, the keel of the sternum being lower than in *Psaltriparus minimus*, and the wing much shorter than in *Parus carolinensis*.

The distinctions between the shoulder girdle of *Chamaea* and the Titmice are teleological rather than morphological, and this is equally true of the same parts in the Wrens and Titmice, the Wrens being narrow-chested, weak-armed birds, while the Tits are sturdy, full-chested, and strong-armed.

Like the Wrens *Chamaea* has the ridge running upward from the coracoid almost

^a On the position of *Chamaea* in the System. By R. W. Shufeldt. Journ. of Morph., iii, no. 3, 475-502. (See Allen, The Auk, vii, 1890, 278.)

^b Notes on the Osteology of the Paridæ, Sitta, and *Chamaea*. By Frederic A. Lucas, Assistant Curator of the Department of Comparative Anatomy. Proc. U. S. Nat. Mus., xiii, 1890, 337-345, pl. 27.

^c Dr. Shufeldt included in his comparison also the genera *Certhia*, *Regulus*, *Polioptila*, and *Accentor*.

obsolete, and this is a point of some value, its presence or absence apparently having nothing to do with power of flight.

The coracoid of *Chamæa* seems unusually long, but the length is apparent, and not real, being due to the smaller size of the associated parts.

The sacrum of *Chamæa*, like that of the *Paridæ*, is broad and deeply pitted, but here similarity between the pelvic girdles of the two ceases.

Viewed from above the pelvis of *Chamæa* is anteriorly narrow and posteriorly contracted, as in Wrens, possessing the characteristic angular aspect peculiar to the pelvis of that group.

Viewed laterally the dorsal outline of the pelvis is alike decurved in *Chamæa* and the Wrens, the dorsal outline of the pelvis in the *Paridæ*—as in the Thrushes—being much straighter.

The renal fosse in *Chamæa* are shaped as in the Wrens, being more sharply triangular than in the *Paridæ*.

In proportionate length of hind limb *Chamæa* surpasses any of the Wrens and greatly exceeds any Titmouse.

The tibia and tarsus of *Chamæa* are as long as the corresponding bones in *Campylorhynchus*, and but for the shorter femur of *Chamæa* the hind limbs of the two birds would be of the same length, although *Campylorhynchus* is almost one-half the longer of the two, and certainly four times as heavy.

In the arrangement of the phalangeal articular facets *Chamæa* is wren-like, the second and fourth being in the same plane, while in *Paridæ* the second is above the fourth.

Chamæa is characterized by a considerable development of the pro-cnemial ridge, this probably bearing some relation to its ground-haunting habits; still the amount of development of the pro and ectocnemial ridges is variable, both among the Wrens and Tits.

It appears, then, that in its cranial characters *Chamæa* is much like *Psaltiriparus*, while the shoulder girdle is slightly and the pelvic girdle decidedly wren-like.

Dr. Shufeldt's conclusion that *Chamæa* finds its nearest relative in *Psaltiriparus* was therefore more correct than my own, that *Chamæa* belonged with the Wrens, and I can only say that at the time I ventured this opinion *Psaltiriparus* was not available.

On the other hand, none of the characters shown in the skeleton of *Chamæa* seems sufficient to warrant placing the genus either with the Wrens or Tits, but rather bear out the intermediate position indicated in the name of Wren-Tit.

The Wren-Tits consist of a single monotypic genus peculiar to the Pacific coast district of the United States. The single species is a small terrestrial bird, living in the dense scrub or "chapparal" of hill-sides and lower mountain slopes, building its open-topped nest on or near the ground and laying three to five eggs of a uniform greenish blue color. The male is said to have a very sweet trilling song.

The Chamæidæ have long had the distinction of being the only family of Passerine birds peculiar to the continent of North America, or Nearctic Region.

Genus CHAMÆA Gambel.

Chamæa ^a GAMBEL, Proc. Ac. Nat. Sci. Phila., iii, Feb., 1847, 154. (Type, *C. fasciata* Gambel.) (See also Gambel, Am. Journ. Sci., iv, Sept., 1847, 286; Ann. and Mag. N. H., xx, 1847, 441, 442; Journ. Ac. Nat. Sci. Phila., i, Dec., 1847, 34.)

Chamoea (emendation) BONAPARTE, Compt. Rend., xxxi, 1850, 479.

^a "Xaxat, on the ground."

The characters of this genus are given in detail under the heading of Family Chamæidæ, on page 683. But one species is known, this differentiated into several more or less strongly marked forms in different climatological areas of its range.

KEY TO THE SUBSPECIES OF CHAMÆA FASCIATA.

- a. Darker, the back, etc., sepia brown or sooty, the under parts ruddy cinnamon.
- b. Darker, the back dark sepia brown or sooty, the under parts deeper vinaceous-cinnamon or fawn color. (Coast of Oregon and northern California, from Yaquina Bay to Humboldt Bay.) *Chamæa fasciata phæa* (p. 689)
- bb. Paler, the back clearer sepia brown, the under parts lighter vinaceous-cinnamon. (Central coast district of California, in Marin, San Francisco, San Mateo, and Santa Clara counties.) *Chamæa fasciata rufula* (p. 688)
- aa. Paler, the back, etc., more grayish brown, the under parts pale buffy cinnamon, pale vinaceous-cinnamon, or pale grayish buff.
- b. Darker, the back, etc., browner, the cinnamomeous color of under parts deeper. (Central interior district of California along southern and eastern shores of San Francisco Bay and up the lower Sacramento Valley as far as Sacramento.)
Chamæa fasciata fasciata (p. 686)
- bb. Paler, the back, etc., grayer, the cinnamomeous color of under parts paler and grayer or more buffy. (Interior districts of California, except lower Sacramento Valley and vicinity of San Francisco Bay, and southern coast district, including adjoining part of Lower California.)
Chamæa fasciata henshawi (p. 689)

CHAMÆA FASCIATA FASCIATA Gambel.

WREN-TIT.

Adults (sexes alike) in spring and summer.—Above plain brownish olive, the pileum, hindneck, remiges, and rectrices slightly grayer, the last often showing very faint indications of darker transverse bars; sides of head and neck paler grayish olive than pileum and hindneck, the lores considerably paler (sometimes dull whitish) anteriorly; under parts pale buffy cinnamon or dull vinaceous-buff, deepening into drab or buffy drab on sides, flanks, and under tail-coverts, the throat and chest sometimes very faintly streaked with the same; bill horn color. the mandible slightly paler; iris white; legs and feet horn color (in dried skins).

Adults in autumn and winter.—Similar to the spring and summer plumage, and not always distinguishable, but usually with the general color of under parts slightly more vinaceous.

Young.—Similar to adults but texture of plumage looser, color of pileum and hindneck less grayish (concolor with that of back) and that of under parts duller and grayer.

Adult male.—Length (skins), 145–162 (153); wing, 56–59 (57.9); tail, 77.5–85 (82); culmen, 11–12 (11.6); tarsus, 24.5–26 (25.1); middle toe, 13–15 (13.7).^a

^a Ten specimens.

Adult female.—Length (skins), 137–159 (146.5); wing, 54–59 (56.2); tail, 73.5–85 (77.8); culmen, 10.5–11.5 (10.9); tarsus, 24–26 (24.9); middle toe, 13–14.5 (13.7).^a

Eastern and southern shores of San Francisco Bay and lower Sacramento Valley, in Santa Clara, Alameda, Contra Costa, Solano ?,^b San Joaquin, Sacramento, and Yolo ?,^b counties, California; accidental in Marin County (Nicasio, December 14, 1896).

Parus fasciatus GAMBEL, Proc. Ac. Nat. Sci. Phila., ii, Aug., 1845, 265 (California; type in coll. U. S. Nat. Mus. c).

[Chamæa] fasciata GAMBEL, Journ. Ac. Nat. Sci. Phila., 2d ser., i, Dec., 1847, 34 (habits, descr.; notes, etc.).—COUES, Key N. Am. Birds, 2d ed., 1884, 262, part.—RIDGWAY, Man. N. Am. Birds, 1887, 566, part.

Chamæa fasciata GAMBEL, Proc. Ac. Nat. Sci. Phila., iii, Feb., 1847, 154; Journ. Ac. Nat. Sci. Phila., 2d ser., i, 1847, pl. 8, fig. 3.—(?) HEERMANN, Journ. Ac. Nat. Sci. Phila., ii, 1853, 264, part (no definite locality).—CASSIN, Illustr. Birds Cal., Tex., etc., 1853, 39, part (pl. 7^d ?).—BAIRD Review Am. Birds, 1864, 76, part ("Sacramento Valley").—COOPER, Orn. Cal., 1870, 39, part.—COUES, Check List, 1873, no. 26, part; 2d ed., 1882, no. 39, part; Birds Col. Val., 1878, 108, part.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 84, part.—BELDING, Proc. U. S. Nat. Mus., i, 1879, 402, part (Stockton, resident; song).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 35, part; Proc. U. S. Nat. Mus., v, 1882, 14, part (synonymy).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 742, part.—OSGOOD, Proc. Biol. Soc. Wash., xiii, 1899, 41, part (crit.).—(?) MAILLIARD, Condor, iii, 1901, 126 (San Benito Co., California, resident c).—BAILEY (Florence M.) Handb. Birds W. U. S., 1902, 459, part.

[*Chamæa*] *fasciata* COUES, Key N. Am. Birds, 1872, 79, part.

[*Chamæa fasciata*] var. *fasciata* RIDGWAY, Proc. U. S. Nat. Mus., v, June 5, 1882, 14, part (diagnosis).

^a Ten specimens.

^b No specimens of *Chamæa* seen by me from these two counties.

^c In none of Dr. Gambel's articles in which this species is mentioned is there the faintest clue to the locality where he discovered the bird. The only one of Dr. Gambel's specimens extant (assuming that he preserved more than one) is, so far as I have been able to discover, the one in the National Museum collection. This was given to Professor Baird by Dr. T. B. Wilson, of Philadelphia, who received it from Dr. Gambel; hence, it may safely be accepted as the type. This Gambel specimen belongs unquestionably to the form which inhabits the restricted area about the southern and eastern shores of San Francisco Bay and the lower Sacramento Valley, and therefore is not, as supposed by Mr. Osgood, the same form as *C. f. henshawi*, whose error in this respect led Mr. Grinnell to redescribe the form under the name *C. f. intermedia*.

Since the above was written I have received from Mr. Grinnell his type of *C. f. intermedia* and compared it carefully with Gambel's type of *C. fasciata*. The two are very nearly alike, but Gambel's type is a little paler, a difference which may result from fading, since it is a very old specimen. Compared with typical specimens of *C. f. rufula*, the type of *C. f. intermedia* is not only paler but very much less brownish.

^d The plate is very deeply colored, and may have been made from an example of *C. f. phæa* or *C. f. rufula*.

^e May be *C. f. henshawi*.

Chamaea fasciata CABANIS, Wiegmann's Archiv. für Naturg., 1848, i, 102.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 370, part (Sacramento Valley^a); Cat. N. Am. Birds, 1859, no. 274, part.—HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 43, part.

Chamaea fasciata BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 332.

Chamaea fasciata intermedia GRINNELL, Condor, ii, July, 1900, 86 (Palo Alto, Santa Clara Co., California; coll. J. Grinnell^b); Pacific Coast Avifauna, no. 3, 1902, 71, part (excl. Marin and Sonoma counties).—ALLEN, Auk, xviii, 1901, 178 (reprint of original descr.).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 459, footnote.

CHAMÆA FASCIATA RUFULA Ridgway.

BUDDY WREN-TIT.

Similar to *C. f. fasciata*, but more richly colored, the general color of under parts deep pinkish cinnamon or dull vinaceous-cinnamon, the upper parts darker and browner (back, rump, and upper tail-coverts bistre or sepia).

Adult male.—Length (skins), 147–161 (157); wing, 56–60 (57.6); tail, 76–85 (81); culmen, 10–12 (11.4); tarsus, 25–26.5 (25.6); middle toe, 14–15 (14.2).^c

Adult female.—Length (skins), 147–161 (154); wing, 54–57.5 (55.6); tail, 76–82.5 (79.4); culmen, 11–11.5 (11.2); tarsus, 24–27 (25); middle toe, 13–14.5 (13.6).^d

Vicinity of San Francisco Bay, on west slope of Coast Range, in Mendocino, Marin, San Francisco, San Mateo, and Santa Clara counties (probably also in Sonoma and southern portion of Humboldt counties),^e California.

Chamaea fasciata (not of Gambel) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 370, part (Santa Clara, California); Cat. N. Am. Birds, 1859, no. 274, part; Review Am. Birds, 1864, 76, part (Santa Clara).—COOPER, Orn. Cal., 1870, 39, part.—COUES, Check List, 1873, no. 28, part; 2d ed., 1882, no. 39, part; Birds Col. Val., 1878, 108, part.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 84, part, pl. 6, fig. 8 (Santa Clara).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 35, part; Proc. U. S. Nat. Mus., v, 1882, 14, part (in synonymy).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 742, part.—MAILLIARD, Condor, ii, 1900, 67 (Marin Co., California, resident).

[*Chamaea*] *fasciata* COUES, Key N. Am. Birds, 1872, 79, part.

[*Chamaea*] *fasciata* COUES, Key N. Am. Birds, 2d ed., 1884, 262, part.—RIDGWAY, Man. N. Am. Birds, 1887, 566, part.

^aThe specimens, which are still in the National Museum collection, are referable to this form. They are doubtless from the lower portion of the Sacramento Valley, probably from near Sacramento or Stockton.

^bSee last paragraph of footnote on p. —.

^cEleven specimens.

^dTen specimens.

^eA specimen from Humboldt Bay, Humboldt County, is intermediate between the present form and *C. f. phæa*, but nearer the latter.

[*Chamæa fasciata*] var. *fasciata* RIDGWAY, Proc. U. S. Nat. Mus., v, June 5, 1882, 14, part (diagnosis).

Chamæa fasciata phæa, part, OSGOOD, Proc. Biol. Soc. Wash., xiii, May 29, 1899, 42 (Nicasio, Marin Co.; Santa Clara; Santa Cruz Mts. ?).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xviii, 1901, 308, part (Marin Co.).—GRINNELL, Pacific Coast Avifauna, no. 3, 1902, 71, part (Mendocino Co.).

[*hamæa*] [*fasciata*] *phæa* BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 460, part (Marin Co.).

Chamæa fasciata intermedia (not of Grinnell, 1900) GRINNELL, Pacific Coast Avifauna, no. 3, 1902, 71, part (Marin and Sonoma counties).

Chamæa fasciata rufula RIDGWAY, Proc. Biol. Soc. Wash., xvi, Sept. 30, 1903, 109 (Nicasio, Marin Co., California; coll. U. S. Nat. Mus.).

CHAMÆA FASCIATA PHÆA Osgood.

DUSKY WREN-TIT.

Similar to *C. f. rufula*, but still darker, the back, etc., deep sepia brown, the pileum and hindneck nearly clove brown, the general color of under parts deep vinaceous-cinnamon or fawn color, with streaks on throat and chest broader (those on throat nearly black).

Adult male.—Length (skins), 145–155 (147.5); wing, 57–59 (57.9); tail, 75–80 (78); culmen, 11–12 (11.4); tarsus, 25–26 (25.2); middle toe, 14–15 (14.2).^a

Adult female.—Length (skin), 142; wing, 58; tail, 79.5; culmen, 10.5; tarsus, 23.5; middle toe, 14.5.^b

Coast district of Oregon (Yaquina Bay) and northern California from mouth of Columbia River to Humboldt Bay.^c

Chamæa fasciata (not of Gambel) TOWNSEND (C. H.), Proc. U. S. Nat. Mus., x, 1887, 229 (Humboldt Bay, n. California; song).

Chamæa fasciata phæa OSGOOD, Proc. Biol. Soc. Wash., xiii, May 29, 1899, 42 (type from Newport, Yaquina Bay, Oregon; coll. U. S. Nat. Mus.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xviii, 1901, 308, part (check list no. 742b).—GRINNELL, Pacific Coast Avifauna, no. 3, 1902, 71.—FISHER (W. K.), Condor, iv, 1902, 135 (Humboldt and Del Norte counties).

[*hamæa*] [*fasciata*] *phæa* BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 460, part.

CHAMÆA FASCIATA HENSHAWI Ridgway.

PALLID WREN-TIT.

Similar to *C. f. fasciata*, but decidedly paler, the back, scapulars, rump, etc., grayish brown (deep hair brown), the pileum and hindneck brownish gray (nearly mouse gray or deep smoke gray), and general color of under parts varying from very pale grayish buff to buffy

^a Four specimens.

^b One specimen.

^c The single specimen examined from Humboldt Bay inclines toward the Nicasio form (*C. f. rufula*), but is decidedly nearer to *C. f. phæa*.

ecru-drab or pale vinaceous-buff,^a fading to nearly white on lower abdomen.

Adult male.—Length (skins), 140.5–164.5 (150.5); wing, 57.5–63 (60.7); tail, 73–90.5 (82.4); culmen, 10–11.5 (10.8); tarsus, 23.5–26.5 (25.1); middle toe, 11.5–14.5 (13.4).^b

Adult female.—Length (skins), 135–154 (146.3); wing, 55–58.5 (56.7); tail, 72–87 (79.4); culmen, 10–12 (10.8); tarsus, 22–26 (24.3); middle toe, 12–14 (13).^c

Interior valleys and foothills and southern coast district of California, from eastern slope of the Coast Range in Napa and Lake counties (Mount St. Helena and Highland Park), northward to Shasta County (Baird), and southward through Sacramento and San Joaquin valleys and western foothills of Sierra Nevada to Kern County (Walkers Basin, Fort Tejon, etc.), thence southward through southern coast district to northwestern Lower California (Tecate, Nachoguero Valley.

^a There is considerable variation in the color of the under parts, according to locality, and some in different specimens from the same place; but considering the very great geographic range of the present form compared with that of any other of the species, the coloration is remarkably uniform. Examples from Butte County are quite as pale and gray beneath as those from Walkers Basin (the type locality), but occasional specimens from the southern coast district are nearly as deeply colored beneath as true *C. fasciata*.

^b Thirty-four specimens.

^c Twenty-four specimens.

Specimens from different portions of the State compare in average measurements as follows:

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Middle toe.
MALES.					
Four adult males from San Bernardino County.....	60.1	83.9	11	25.9	13.5
Nine adult males from San Diego County.....	60	82.7	10.6	25	13.1
Two adult males from San Luis Obispo County.....	60.7	86	11.5	25.7	13.7
Five adult males from Los Angeles County.....	58.4	81.5	11.1	25.6	13.6
Two adult males from Lower California (Tecate and Nachoguero Valley).....	60.7	78.2	10.5	25.2	13.5
Twelve adult males from Shasta, Butte, Tehama, and Eldorado counties.....	58.9	82.4	10.9	24.6	13.4
FEMALES.					
One adult female (type) from Kern County (Walkers Basin).....	58	85.5	11	23	13
Two adult females from San Bernardino County.....	58.2	79	11	25.5	13.2
One adult female from Riverside County.....	56	80.5	10	25	13.5
Six adult females from San Diego County.....	56.6	80.1	11	23.9	12.6
Seven adult females from Los Angeles County.....	57.1	80.6	10.8	24.5	13.1
Seven adult females from Shasta, Butte, and Eldorado counties.....	56.7	79.4	10.8	24.3	13

etc.) and northwestward at least to San Luis Obispo County (Paso Robles).^a

Chamæa fasciata (not of Gambel) HEERMANN, Journ. Ac. Nat. Sci. Phila., ii, 1853, 284, part, at least.—CASSIN, Illustr. Birds Cal., Tex., etc., 1853, 39, part.—XANTUS, Proc. Ac. Nat. Sci. Phila., 1859, 191 (Fort Tejon).—BAIRD, Review Am. Birds, 1864, 76, part (Fort Tejon; San Diego).—COOPER, Am. Nat., iii, 1869, 185, in text (Cajon Pass); Orn. Cal., 1870, 39, part (San Diego and foothills of Sierra Nevada).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 84, part.—NELSON, Proc. Bost. Soc. N. H., xviii, 1875, 356 (Nevada, California).—BELDING, Proc. U. S. Nat. Mus., i, 1879, 402, part (Calaveras Co.; Marysville; song).—EVERMANN, Auk, iii, 1886, 186 (Ventura Co.).—EMERSON, Bull. 7, Calif. Ac. Sci., 1887, 431 (Poway Valley, San Diego Co.).—OSGOOD, Proc. Biol. Soc. Wash., xiii, 1899, 41, part (crit.).—FISHER (W. K.), Condor, ii, 1900, 138 (Mount St. Helena, Napa Co.; crit.).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 459, part.

Chamæa fasciata fasciata GRINNELL (J.), Pacific Coast Avifauna, no. 3, June 25, 1902, 71, part.

Chamæa fasciata HENSHAW, Orn. Rep. Wheeler's Surv., 1876, 228 (Tejon Mts. and Walkers Basin, Kern Co.).

Chamæa fasciata henshawi RIDGWAY, Proc. U. S. Nat. Mus., v, June 5, 1882, 13 (Walkers Basin, Kern Co., s. California; coll. U. S. Nat. Mus.); Bull. Nutt. Orn. Club, vii, 1882, 257.—REICHENOW and SCHALOW, Journ. für Orn., 1884, 420 (reprint of orig. descr.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 742a.—TOWNSEND (C. H.), Proc. U. S. Nat. Mus., x, 1887, 229 (lower McCloud R. and Baird, Shasta Co.).—ANTHONY, Zoe, iv, 1893, 246 (San Pedro Martir Mts., Lower California).—FISHER (A. K.), North Am. Fauna, no. 7, 1893, 140 (Kernville; San Bernardino; Walkers Basin; Kaweah R. bet. San Simeon and Carpentaria; Santa Paula; San Diego Co.).—MERRIAM (F. A.), Auk, xiii, 1896, 122 (Twin Oaks, San Diego Co.; habits; song).—GRINNELL, pub. 2, Pasadena Ac. Sci., 1898, 50 (Los Angeles Co., resident).

[*Chamæa fasciata*.] Var. *henshawi* RIDGWAY, Proc. U. S. Nat. Mus., v, 1882, 14 (diagnosis and synonymy).

C[*hamæa*] f[*asciata*] *henshawi* COUES, Key N. Am. Birds, 2d ed., 1884, 262.

C[*hamæa*] *fasciata henshawi* RIDGWAY, Man. N. Am. Birds, 1887, 566.

Chamæa f[asciata] henshawi CARPENTER, Condor, iv, 1902, 95 (Santa Barbara; nesting in tree).

Family SYLVIIDÆ.

THE WARBLERS.

Very small to large (wing 48–98 mm.) “ten-primaried,” dentirostral, acutiplantar Oscines with nostrils longitudinal and operculated (usually exposed) and with the young not spotted.

The above very unsatisfactory diagnosis is the best I am able to devise for the group known as Sylviidæ. The group is an exceedingly

^aSpecimens are wanting in the material examined from the group of counties between San Luis Obispo and Santa Cruz.

polymorphic one and without doubt requires subdivision into two or more; but the species are very numerous and the working out of the problem would require far more time than is at my disposal for the purpose.

The relatively few American forms belong to two groups, one of which (*Poliophtilinae*), consisting of a single genus, is peculiar to America, while the other includes two genera, one of which (*Regulus*) is circumpolar and the other (*Acanthopneuste*) Palearctic but included in the American fauna on account of the occurrence of a single Siberian species in western Alaska. Limiting a description of the family characters to the American forms, they may be given as follows:

Bill much shorter than head, slender, rather broad and depressed at base, where its width is decidedly less than half the length of exposed culmen but greater than its depth; culmen distinctly, almost sharply, ridged (at least basally), straight to near tip of maxilla, where gradually but decidedly decurved; commissure straight or nearly so, the maxillary tomium distinctly notched immediately behind the distinctly but minutely uncinuate tip of the maxilla; gonys slightly convex or nearly straight, ascending terminally, its base anterior to nostril or at least not posterior to anterior end of nostril. Nostril at least partly exposed, longitudinal, operculate, sometimes partly covered by antrorse bristly plumules of the frontal antiae. Rictal bristles distinct. Wings rather long but with rounded tip; eighth, seventh, and sixth, or eighth to fifth, primaries longest, the ninth longer than third, sometimes longer than fifth, the tenth much less than half as long as ninth, usually less than one-third as long, often scarcely longer than primary coverts. Tail variable as to relative length but usually decidedly shorter than wing (longer only in subfamily *Poliophtilinae*), even, emarginate, slightly double-rounded, or (in *Poliophtilinae*) much rounded, the rectrices usually broad and rounded at tip but sometimes (in genera with shorter and emarginate tail) somewhat pointed. Tarsus much longer than middle toe with claw, often nearly (sometimes quite) twice as long as middle toe without claw, the acrotarsium booted or scutellate, or intermediate with respect to this character; lateral toes about equal in length (the outer sometimes slightly longer than inner), their claws, especially the outer, sometimes reaching to or beyond base of middle claw but usually falling short; hallux about as long as lateral toes but much stouter, its strongly arched claw shorter than the digit; basal phalanx of middle toe adherent for most of its length to outer toe, for about half its length to inner toe.

Coloration.—Above plain olive, olive-green, brown, or bluish gray (wings and tail, sometimes crown also, black and lateral rectrices partly white in *Poliophtila*, the crown with a yellow, orange, or red patch in *Regulus*); under parts whitish, yellowish, or pale grayish; sexes

usually alike or nearly so and young not materially different from adults, except sometimes in *Regulus* and *Poliophtila*.

Range.—Northern Hemisphere in general and greater part of Neotropical Region, but most numerous represented in the Palearctic Region. (Numerous genera and species.)

The above diagnosis is based on the forms included under the Sylviidæ by Mr. Seebohm,^a together with the genera *Regulus* and *Poliophtila*, which I am unable to separate satisfactorily. Certainly there is less structural difference between *Regulus* and *Reguloides* on the one hand than between the latter and *Sylvia* on the other, *Acanthopneuste* and other intermediate genera leading directly from *Regulus* toward *Sylvia*; consequently I can see no reason for separating *Regulus* from the Sylviidæ, much less for referring it to the Paridæ, as has been done by some authors.^b

As to the exclusively American genus *Poliophtila*, I am still in doubt whether it should be placed among the Sylviidæ. Its reference to the family Muscipidæ has been suggested by two authors,^c to the Mimidæ by another;^d the latter disposal of it I at one time favored, but after carefully reconsidering the question I am convinced that there is no group to which it can properly be referred unless to the Sylviidæ, the only alternative being the recognition of a separate family (Poliophtilidæ).

The only American groups with which any member of the Sylviidæ (as here defined) are likely to be confounded are the Paridæ, Turdidæ, Mniotiltidæ, and Vireonidæ. From the first the Sylviidæ differ in more slender and notched bill, sharply ridged culmen, longitudinal and operculate (usually exposed) nostrils,^e distinct rictal bristles, less coherent toes, etc.; from the second by the unspotted plumage of the young; from the third by the obvious (though sometimes minute) tenth primary, this being rudimentary and concealed in Mniotiltidæ; and from the fourth by the different structure of the toes, while the species of Sylviidæ which most resemble certain Vireonidæ moreover have the acrotarsium booted.

Of the so-called subfamilies defined below, the Phylloscopinæ are so nearly peculiar to the Old World that only a single species, of northeastern Asia, occurs in western Alaska, no other portion of the American continent having a representative of the group. The sub-

^a Cat. Birds Brit. Mus., v, 1881, 1-145.

^b For example, Gadow, in Cat. Birds Brit. Mus., viii, 1883, 79-86, Seebohm, Hist. Brit. Birds, i, 1883, 451, 452, and Hellmayr, Tierreich, 18, Lief., 1903, 7-15.

^c Sharpe, Cat. Birds, Brit. Mus., x, 1885, 440, and Sclater, Argentine Ornithology, i, 1888, 12.

^d Stejneger, Standard Nat. Hist., iv, 1885, 504.

^e If the nostrils are hidden by feathers in Sylviidæ the tarsi are booted (e. g. *Regulus*).

family Sylviinæ is entirely Palæarctic, and includes such well-known European birds as the Blackcap (*Sylvia atricapilla*), Whitethroat (*Sylvia cinerea*), Sedge Warbler (*Acrocephalus phragmitris*), Reed Warbler (*A. arundinaceus*), Grasshopper Warbler (*Locustella naevia*), etc. The so-called Regulinæ (which I am unable to separate from the Phylloscopinæ) are circumpolar and much more limited in its members, which are less than a dozen in number of species, belonging to a single genus, and about equally divided between the Nearctic and Palæarctic regions. The Potioptilinæ are almost equally circumscribed, but of much more limited range, being peculiar to the warmer parts of America.

KEY TO THE AMERICAN SUBFAMILIES OF SYLVIIDÆ.

- a. Acrotarsium booted (in American species); tail much shorter than wing, even or emarginate, the rectrices subacuminate at tip; color of upper parts more or less olive or olive-green; tail without black.....Phylloscopinæ.
- aa. Acrotarsium scutellate; tail about as long as wing, much rounded, the rectrices broadly rounded at tip; color of upper parts bluish gray or grayish blue (rarely brownish in young), sometimes with pileum black; tail mostly black. Polioptilinæ.

As stated above, I am unable to separate the genus *Regulus* from the Phylloscopinæ, at least by external structural characters, which are very closely identical with those of *Reguloides*, the latter being in fact intermediate between *Regulus* and *Acanthopneuste*. It is true that *Regulus cristatus* and other species of the genus have a very peculiar modification in the character of the antrorse latero-frontal plumules, one of which is much larger than the rest and projects over the nostril; but *R. calendula* does not possess this peculiar feather, the latero-frontal plumules differing from those of *Reguloides* and *Acanthopneuste* in no essential respect, so far as I am able to discover.

Genus ACANTHOPNEUSTE Blasius.

Acanthopneuste BLASIUS, Naumannia, 1858, 313. (Type, *Phyllopneuste borealis* Blasius.)

Small, plainly colored Sylviidæ with booted acrotarsium and exposed nostrils, and with exposed culmen equal to or longer than middle toe without claw.

Bill more than half as long as head (exposed culmen equal to or longer than middle toe without claw), broader than deep at base; culmen straight to near tip where decidedly decurved, the tip of the maxilla minutely uncinatè; gonys faintly convex or nearly straight, about as long as distance from nostril to tip of maxilla. Nostril exposed, longitudinal, narrow, distinctly operculate. Rictal bristles long, very distinct; latero-frontal feathers erect or semiantrorse, with distinct bristly tip. Wing rather long and pointed; eighth, or eighth

and seventh primaries longest, the ninth shorter than sixth, sometimes shorter than fifth; tenth primary minute, narrow, and pointed, not more than one-third as long as ninth, sometimes shorter than primary coverts; wing-tip two-thirds as long as tarsus to nearly as long. Tail about as long as wing from bend to end of secondaries, even, slightly emarginate or slightly double-rounded, the rectrices with extreme tip subacuminate. Tarsus decidedly less than one-third as long as wing, much longer than middle toe with claw, the acrotarsium completely booted;^a outer toe slightly longer than inner, its claw reaching about to base of middle claw; hallux shorter than outer toe, its claw decidedly shorter than the digit; basal phalanx of middle toe adherent for most of its length to outer toe, for about half its length to inner toe.

Coloration.—Plain olive or olive-greenish above, the occiput sometimes with a median stripe or patch of pale olive-yellowish; a pale yellowish or dull whitish superciliary stripe; under parts whitish, more or less tinged with pale yellow, especially on under wing and tail coverts. Sexes alike and young not materially different from adults.

Nidification.—Nest on or near ground, semidomed or oven-shaped, composed of mosses, fine grasses, etc. Eggs white, speckled with pale brownish red.

Range.—Palæarctic Region, chiefly the eastern portion, breeding far northward or at high altitudes. One species extending into western Alaska.

I restrict this genus to the group of species constituting the *Acanthopneustæ* of Seebohm.^b Mr. Seebohm placed them in the genus *Phylloscopus*,^c as have other authorities; but, apart from other differences, the species of *Acanthopneuste* (like those of *Reguloides*) have the acrotarsium completely booted, those of *Phyllopseuste* having it scutellate, at least on the inner side. From *Reguloides*,^d *Acanthop-*

^a Except for the extreme lower portion where, as in all Oscines having booted tarsi, there are two or three distinct divisions.

^b Cat. Birds Brit. Mus., v, 1881, 38.

^c The correct generic name is *Phyllopseuste*, the synonymy of the genus being as follows:

Phyllopseustæ Meyer, Vög. Liff. u. Estl., 1815, 122. (Type, by elimination, *Motacilla sibilatrix* Bechstein.) (Given only in plural form.)

Phyllopseustes (emendation) Gloger, Hand-und Hilfsb. Naturg., 1842, 314.

Phyllopseuste (emendation) Meves, Journ. für Orn., 1875, 429.

Phylloscopus Boie, Isis, 1826, 972. (Type, *Motacilla trochilus* Linnæus.)

Sibilatrix Kaup, Naturl. Syst., 1829, 98. (Type, *Motacilla sibilatrix* Linnæus.)

Phyllopneuste (misprint) Boie, Isis, 1828, 321.—Brehm, Vög. Deutschl., 1831, 423.

^d *Reguloides* Blyth, Journ. Asiat. Soc. Bengal, xvi, pt. i, 1847, 442. (Type, *Regulus modestus* Gould; *Motacilla superciliosa* Gmelin.)—*Phyllobasileus* Cabanis, Mus. Hein., i, 1850, 33. (Type, *Motacilla proregulus* Pallas; in reality, intended to replace *Reguloides*, which is rejected on grounds of purism.)

neuste differs in relatively much larger bill and longer tail and somewhat different style of coloration, the species of *Reguloides* having two broad whitish wing-bars, some of them having the rump pale yellow and some the inner webs of outermost rectrices white.

ACANTHOPNEUSTE BOREALIS KENNICOTTI (Baird).

ALASKAN WILLOW WARBLER.

Similar to *A. b. borealis*,^a but smaller; color of upper parts decidedly grayer (at least in spring and summer plumage), and under parts less strongly tinged with yellow.

Adults in spring and summer.—Above plain light grayish olive, becoming more greenish olive on rump and upper tail-coverts; outermost greater wing-coverts narrowly tipped (on outer webs) with whitish; a narrow superciliary stripe of dull primrose yellow or very pale buffy yellow; a dusky loreal streak, broader and darker next to anterior angle of eye; upper portion of auricular region deep grayish olive, forming a broad postocular stripe; suborbital, malar, and lower half, or more, of auricular region very pale primrose yellowish or dull yellowish white, more or less clouded with pale grayish olive; under parts very pale dull primrose yellowish or dull yellowish white, shading into pale grayish olive on sides and flanks; axillars and under wing-coverts pale primrose yellow terminally, pale grayish basally, the carpo-metacarpal feathers olivaceous margined with pale yellowish; thighs light grayish olive (paler on inner side); maxilla dark brown with paler tomia; mandible pale brown (in dried skins), more or less dusky terminally (sometimes for terminal half); legs and feet clear brownish (in dried skins), the toes rather darker than tarsi.

Adults in autumn and winter.—Similar to the spring and summer plumage, but more richly colored, the upper parts bright, slightly greenish, olive, the under parts and superciliary stripe pale buffy yellow or naples yellowish.

^a *Phyllopneuste borealis* Blasius, Naumannia, 1858, 313 (Okhotsk Sea, N. lat. 59° 38', E. long. 147° 30', Sept. 15); Taczanowski, Orn. Vost. Sibir., 1877, 26; David and Oustatet, Ois. Chine, 1877, 271; Stejneger, Naturen, 1882, 182 (Bering Island); Proc. U. S. Nat. Mus., vi, 1883, 71 (Bering Island).—*Sylvia (Phyllopneuste) borealis* Naumann, Vög. Deutschl., xiii, 1860, 69, pl. 375, fig. 1.—*Phylloscopus borealis* Blyth, Ibis, 1867, 28; Collett, Proc. Zool. Soc. Lond., 1877, 43-47 (Norway; biography); Seebohm, Cat. Birds Brit. Mus., v, 1881, 40 (excl. syn. *Phyllopneuste kennicotti* Baird); Blakiston, Amend. List Birds Japan, 1884, 56.—*Phyllopseustes borealis* Meves, Journ. für Orn., 1875, 429; Stejneger, Bull. U. S. Nat. Mus., no. 29, 1885, 302 (Petropaulovsk, Bering I., and Copper I., Kamchatka; synonymy, crit., etc.).—*Acanthopneuste borealis* Stejneger, Proc. U. S. Nat. Mus., xvi, 1893, 636 (Suruga, Japan).—*Phylloscopus sylvicultrix* Swinhoe, Ibis, 1860, 53 (Amoy, China).—*Phyllopneuste sylvicultrix* Swinhoe, Ibis, 1863, 307.—[*Sylvia*] *sylvicultrix* Gray, Hand-list, i, 1869, 216, no. 3054.—*Sylvia flavescens* Gray, Proc. Zool. Soc. Lond., 1860, 349 (Batchian, Moluccas).—*Phylloscopus hylebata* Swinhoe, Journ. Asiat. Soc. Bengal, xxix, 1860, 265 (Amoy, China).

Length (skins), 100–115 (110); wing, 60–65 (62); tail, 43.5–47.5 (44.9); exposed culmen, 9–9.5 (9.2); tarsus, 18–19 (18.7); middle toe, 9–11 (10.2).^a

Western Alaska (St. Michael, Nushagak, Allokknagik River, Kowak River, etc.); migrating in winter to Southeastern Asia, but by what route and to what countries not yet determined.^b

Phyllopneuste kennicotti BAIRD, TRANS. Chicago Acad. Sci., i, 1869, 313, pl. 30, fig. 2 (St. Michael, Alaska; coll. U. S. Nat. Mus.).

Ph[yllipseustes] borealis kennicotti STEJNEGER, Bull. U. S. Nat. Mus., no. 29, 1885, 303, in text.

[*Phyllopneuste*] *borealis* (not of Blasius) COUES, Key N. Am. Birds, 1872, 77.

Phyllopneuste borealis COUES, Check List, 1873, no. 20.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 70, pl. 5, fig. 5.

Phylloscopus borealis RIDGWAY, Proc. U. S. Nat. Mus., 1880, 215; Nom. N. Am. Birds, 1881, no. 34.—SEEBOHM, Cat. Birds Brit. Mus., v, 1881, 40, part (in synonymy).—COUES, Check List, 2d ed., 1882, no. 32.—NELSON, Cruise "Corwin" in 1881 (1883), 60 (St. Michael, Alaska).

P[hylloscopus] borealis COUES, Key N. Am. Birds, 2d ed., 1884, 259, part.

Phyllopseustes borealis STEJNEGER, Bull. U. S. Nat. Mus., no. 29, 1885, 302, part (Alaskan references, etc.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 747, part.—TOWNSEND (C. H.), Auk, iv, 1887, 13 (Kowak R., Alaska).—GRINNELL, Pacific Coast Avifauna, i, 1900, 60 (Kowak R.; habits).—MCGREGOR, Condor, iv, 1902, 144 (Signal Cairn, Norton Sound; habits).

P[hyllopseustes] borealis RIDGWAY, Man. N. Am. Birds, 1887, 567, part.—COUES, Key N. Am. Birds, 5th ed., i, 1903, 261, part.

(?) *Phylloscopus trochilus* (not *Motacilla trochilus* Linnæus?) PLESKE, Ornithographia Rossica, ii, pt. 2, 1889, 229 (Bering Sea).^c

^a Seven specimens, none of them with sex determined.

These Alaskan specimens, compared with series of both sexes from eastern Asia, compare in average measurements as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
Seven adults (sex not determined) from Alaska.....	62	44.9	9.2	18.7	10.2
Six adult males from Eastern Asia.....	68.5	50.9	9.5	19.1	10.1
Five adult females from Eastern Asia.....	63.7	45.4	9.6	18.6	9.6

All the Asiatic males measured are from the Commander Islands and Petropaulovsk, Kamchatka; the females are from China, Burma, Siam, Philippines, etc., and possibly include some specimens belonging to the Alaskan form, taken as migrants. The smallest Asiatic specimens are from Chance Island, Siam (wing 60, tail 43), and Kowloon, China (wing 63.5, tail 45).

^b The range of *A. b. borealis* is as follows:

Breeding in arctic districts of the Palearctic Region, from Finmark to Kamchatka (including Commander Islands), and in subalpine districts of southeastern Siberia and Mongolia; migrating southward through China (coastwise), Japan, and Formosa to the Philippines, Malay Archipelago, Malacca, Tenasserim, and South Andaman Islands; accidental in Heligoland.

^c Specimen in the St. Petersburg Academy museum (no. 10861) collected by Woesnessensky in Bering Sea August 24, 1843.

Genus *REGULUS* Cuvier.

Regulus CUVIER, Leç. d'Anat. Comp., i, 1799-1800, tab. ii. (Type, *Motacilla regulus* Linnæus.)

Corthylio^a CABANIS, Journ. für Orn., i, Jan., 1853, 83. (Type, *Motacilla calendula* Linnæus.)

Very small Sylviidæ (wing less than 60 mm.) with slender, booted tarsi, tail much shorter than wing, emarginate, the adult males with a patch of bright yellow, orange or scarlet on crown.

Bill small and slender, the exposed culmen much shorter than middle toe without claw, depressed at base, where its width considerably exceeds its depth; culmen straight to near tip, where obviously decurved, the maxillary tomium distinctly notched subterminally. Nostril longitudinal, overhung by a distinct operculum, partly covered by antrorse latero-frontal plumules of which one (in most species) is strongly developed, reaching considerably beyond nostrils. Rictal bristles well developed. Wing rather long, but rounded at tip; seventh and sixth primaries longest, the eighth and fifth but little shorter and nearly equal, the ninth shorter than fourth (sometimes not longer than third), the tenth about one-third to much more than one-third (but less than one-half) as long as ninth; wing-tip about equal to middle toe with claw, or shorter. Tail about three-fourths as long as wing or a little more, distinctly emarginate, the rectrices becoming somewhat broader terminally, with pointed tip. Tarsus long and slender, about one-third as long as wing, much longer than middle toe with claw, the acrotarsium booted; lateral toes about equal (or the outer very slightly longer than the inner), their claws not reaching to base of middle claw; hallux about as long as lateral toes but much stouter, its claw decidedly shorter than the digit; basal phalanx of middle toe adherent to outer toe for most of its length, to inner toe for about half its length.

Coloration.—Plain olive, olive-grayish or olive-greenish above, the wings dusky with pale edgings and two whitish bands; crown with a concealed patch of orange or scarlet in adult males, this in most species margined with yellow and inclosed between two stripes of black (usually united on forehead); adult females also with black and yellow on crown (except in *R. calendula*). Young similar to adults but without black, yellow, orange or red on crown.

Nidification.—Nest very bulky, usually more or less pensile, attached to small twigs in spruce or other coniferous trees, composed of delicate plant fibers, mosses, and various soft materials. Eggs 5 to 10, whitish or buffy, minutely freckled with brown (sometimes apparently immaculate).

^a "Von κορυβίλος, ὁ, nom. prop. = *Regulus*."

Range.—Northern Hemisphere, breeding in more northern or higher coniferous forests. (About fifteen species and subspecies.)

In all features of external structure this genus comes so very close to *Reguloides*^a that I can not understand why it should ever have been placed among the Paridæ, as has been done by Mr. Seebohm, Dr. Gadow, and others. The surprising feature of the case is that in scarcely a single character does it agree with the diagnoses of the Paridæ (or Parinæ) of the authors who thus misplace it. For example, Mr. Seebohm, in comparing^b his "Subfamily Parinæ" (i.e. Paridæ + *Panurus* + *Regulus* + *Accenter* + Certhiidæ + Sittidæ + Troglodytidæ!) with the "Turdinæ" (Turdidæ) and "Sylviinæ" (Sylviidæ) says: "From both these subfamilies they are distinguished by their conical bills with no dental notch. From the former they are further distinguished by their scutellated tarsi, and from the latter by their single moult." Now, *Regulus* does not agree in any of these respects, except possibly in the matter of molt, regarding which I possess no definite information,^c having, as it does, a distinctly notched bill and typically "booted" tarsi.

The single feather covering the nostril in the typical species of *Regulus* has often been mentioned, and Oates^d attaches so much importance to this feather that he raises the genus to family rank, forgetting, or perhaps being unaware, as does Dr. Gadow^e also, that one species of *Regulus* (*R. calendula*) does not possess this feather; that is to say, the latero-frontal bristly plumules are equally developed instead of a single one, on each side, being much larger than the rest.

KEY TO THE SPECIES AND SUBSPECIES OF *REGULUS*.

- a. A whitish superciliary stripe; pileum with a more or less distinct stripe of black or dusky along each side.
- b. Black crown-stripes broad, connected anteriorly, inclosing a patch of yellow, yellow and orange, or red. (Adults.)
- c. Forehead and lores whitish confluent with a broad superciliary stripe of the same color; no black postocular stripe; crown-patch not orange margined with yellow in males, wholly yellow in females. (*Regulus satrapa*.)
- d. Coloration grayer above; wing and tail longer, bill stouter. (Eastern North America.) *Regulus satrapa satrapa* (p. 700)
- dd. Coloration more olivaceous above; wing and tail shorter, bill more slender. (Western North America, from Kadiak, Alaska, to Oaxaca, southern Mexico.) *Regulus satrapa olivaceus* (p. 702)

^aSee page 695, footnote.

^bHistory of British Birds and their Eggs, i, 1883, 451.

^cThough Oates, in Birds of British India (i, 344), mentions "the single moult."

^dBirds of British India, i, 344. He says: "These birds possess a character which suffices to separate them from all other Passeres, viz, a stiff, small, and perfect feather over each nostril. This character is sufficiently important, in my opinion, to render it desirable to elevate the Goldcrests to the rank of a family."

^eCat. Birds Brit. Mus., viii, 1883, 79.

- cc. Forehead and lores black; whitish superciliary stripes connected across the anterior portion of crown; a black postocular stripe; crown-patch vermilion red. (Pennsylvania; extinct?).....*Regulus curvierii*, adult male (p. 704)
- bb. Black (or dusky) crown-stripes narrower, not connected anteriorly, the whole space between them brownish gray...*Regulus satrapa* and subspecies, young.
- aa. No superciliary stripe; pileum without any black or dusky lateral stripe (a red patch in center of pileum in adult males). (*Regulus calendula*.)
 - b. Paler, with longer wing and shorter bill (wing averaging more than 58 in male, more than 56 in female; exposed culmen usually less than 8.7). (North America in general, breeding northward and along higher mountains southward; south to Mexico.).....*Regulus calendula calendula* (p. 705)
 - bb. Darker, with shorter wing and longer bill (wing averaging less than 57 in males, less than 55 in females; exposed culmen usually more than 8.7).
 - c. Male averaging, wing 56.5, exposed culmen 8.7, tarsus 18.7; female, wing 54.5, culmen 8.7, tarsus 18.1. (Pacific coast, from California to southern Alaska.).....*Regulus calendula grinnelli* (p. 709)
 - cc. Male averaging, wing 54.6, exposed culmen 9.8, tarsus 19.8; female, wing 50, exposed culmen 10, tarsus 20. (Guadalupe Island, Lower California.)
Regulus calendula obscurus (p. 710)

REGULUS SATRAPA SATRAPA Lichtenstein.

GOLDEN-CROWNED KINGLET.

Adult male in spring and summer.—Anterior portion of forehead and broad superciliary stripe dull white or pale gray; within this a broad V-shaped mark of black, inclosing a narrower one of yellow, within which is a large patch of bright orange or cadmium orange, occupying center of crown and projecting over occiput; occiput (beneath posterior portion of orange-colored crest), hindneck, and upper back mouse gray; rest of back grayish olive, changing gradually into brighter or more greenish olive on rump and upper tail-coverts; wings and tail dusky with light yellowish olive or olive-yellow edgings, the middle and greater wing-coverts broadly tipped with pale olive-yellow or yellowish white; secondaries crossed by a basal (concealed) band of pale yellow, immediately succeeded by an exposed one of dusky; an indistinct, or at least not sharply defined, dusky loreal and postocular streak, and, usually, a similar rectal streak; rest of sides of head, together with under parts, plain dull olive-whitish, the sides and flanks faintly tinged with more yellowish olive; bill black; iris brown; legs and feet deep brown (in dried skins), with soles of toes yellowish.

Adult male in autumn and winter.—Similar to the spring and summer plumage but more brightly colored, the upper parts more decidedly olivaceous, the under parts strongly suffused with pale buffy olive.

Adult female.—Similar to the adult male, but orange crown-patch entirely replaced by canary yellow.

Young, first plumage (sexes alike).—Pileum brownish gray or grayish olive, margined laterally with a rather indistinct line of black;

otherwise similar to adults, but hindneck concolor with back, etc., the color more brownish olive, and texture of plumage much looser.

Adult male.—Length (skins), 93–101.5 (97); wing, 56.5–60 (58.4); tail, 42–46.5 (44.2); exposed culmen, 6–8.5 (7.5); tarsus, 16.5–17.5 (17.2); middle toe, 8–9.5 (8.9).^a

Adult female.—Length (skins), 90–101 (96); wing, 55–58 (56.4); tail, 41.5–45 (42.7); exposed culmen, 7–8.5 (7.8); tarsus, 16–17 (16.5); middle toe, 8–9 (8.5).^a

North America east of Rocky Mountains; north to Labrador (as far as Aillik), Keewatin (lower Echimamish), etc.; breeding southward to Massachusetts (Berkshire and Plymouth counties), central New York (Oneida County), northern Michigan (Mackinac Island), northern Minnesota (?), etc., and along Allegheny Mountains to western North Carolina (in spruce belt); wintering southward to northern Florida, and westward along Gulf coast to south-central Texas.

Regulus cristatus VIEILLLOT, Ois. Am. Sept., ii, 1807, 50, pl. 106 (new name for *Motacilla regulus* Linnæus^b).—BONAPARTE, Journ. Ac. Nat. Sci., Phila., iv, 1824, 187; Ann. Lyc. N. Y., ii, 1826, 91.—NUTTALL, Man. Orn. U. S. and Can., i, 1832, 420.—AUDUBON, Orn. Biog., ii, 1834, 476, pl. 186.—STEJNEGER, Proc. U. S. Nat. Mus., v, 1882, 30 (crit.).

Sylvia regulus (not *Motacilla regulus* Linnæus) WILSON, Am. Orn., i, 1808, 126, pl. 8, fig. 2.

R[egulus] satrapa LICHTENSTEIN, Verz. Doubl., 1823, 35 (North America; ex *Parus satrapa* Illiger, manuscript).

Regulus satrapa BONAPARTE, Geog. and Comp. List, 1838, 19; Consp. Av., i, 1850, 291.—AUDUBON, Synopsis, 1839, 82; Birds Am., oct. ed., ii, 1841, 165, pl. 132.—WOODHOUSE, in Rep. Sitgreaves' Expl. Zuffi and Col. R., 1853, 67, part (Indian Territory; Texas).—BADEKER, Journ. für Orn., 1856, 33, pl. 1, fig. 8 (Labrador; fig. of egg).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 227, part (Carlisle, Pennsylvania; District of Columbia); Cat. N. Am. Birds, 1859, no. 162, part; Review Am. Birds, 1864, 65, part (Sherborn, Massachusetts; Carlisle; Liberty Co., Georgia).—WILLIS, Ann. Rep. Smithsonian. Inst. for 1858 (1859), 282 (Nova Scotia).—DRESSER, Ibis, 1865, 476 (San Antonio, Texas, winter).—ALLEN, Bull. Mus. Comp. Zool., ii, 1871, 260 (Jacksonville, Florida, Jan.); Bull. Am. Mus. N. H., i, 1886, 261 (mountains of Berkshire Co., Massachusetts; breeding?).—MAYNARD, Birds Florida, 1872, 25.—COUES, Check List, 1873, no. 22, part; 2d ed., 1882, no. 34; Birds N. W., 1874, 16, part; Birds Col. Val., 1878, 96, part.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 73, part, pl. 5, fig. 8.—INGERSOLL, Bull. Nutt. Orn. Club, i, 1876, 78, part (breeding habits, etc.).—BREWSTER, Bull. Nutt. Orn. Club, iii, 1878, 19 (descr. young); Auk, iii, 1886, 177 (Black Mts., w. North Carolina, breeding in spruce belt); v, 1888, 337–344 (Winchendon, Worcester Co., Massachusetts, breeding; descr. nesting habits, nest and eggs, etc.).—BREWER, Bull. Nutt. Orn. Club, iv, 1879, 96 (Bangor, Maine, breed-

^a Ten specimens.

^b Since Vieillot's account relates only incidentally to the European species (*R. regulus*), both his description and plate being of the American species, it is a serious question whether the name *Regulus cristatus* should not be used for the latter, as has been suggested by Newton (Yarrell's Hist. Brit. Birds, i, 1871, 457, footnote) and claimed by Stejneger (Proc. U. S. Nat. Mus., v, 1882, 30).

- ing; descr. nest and eggs).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 33; Orn. Illinois, i, 1889, 75.—BROWN (N. C.), Proc. Portl. Soc. N. H., 1882, 5 (Portland, Maine, breeding).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 82, part (in synonymy).—BICKNELL, Auk, i, 1884, 134 (song).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 748.—SENNETT, Auk, iv, 1887, 245 (Roan Mt., North Carolina, breeding at 6,000 ft.).—COOKE, Bird Migr. Miss. Valley, 1888, 279 (localities and dates; Concho Co., Texas, and s. e. Texas, in winter; breeding in n. Minnesota?).—FAXON, Auk, vi, 1889, 105 (Graylock Mt., Berkshire Co., Massachusetts, breeding above 2,200 ft.).—RALPH and BAGG, Auk, vii, 1890, 232 (Oneida Co., New York, resident, breeding).—BREWSTER and CHAPMAN, Auk, viii, 1891, 137 (Suwanee R., n. w. Florida, Mar.).—DWIGHT, Auk, ix, 1892, 140 (North Mt. and Looming Co., Pennsylvania, breeding); x, 1893, 14 (Prince Edward I., breeding).—WHITE, Auk, x, 1889, 229 (Mackinac I., Michigan, breeding).—NEHRING, Our Native Birds, i, 1893, 100, pl. 7.—CHADBOURNE, Auk, xiii, 1896, 346 (Plymouth Co., Massachusetts, breeding).—DEARBORN, Prelim. List Birds Belknap and Merrimac Cos., New Hampshire, 1898, 33 (breeding).—BEYER, Proc. Louis. Soc. Nat. for 1897-99 (1900), 43 (Louisiana, winter resid.).—FAXON and HOFFMANN, Birds Berkshire Co., Mass., 1900, 12 (breeding in spruce belt of Saddle Mt. and Hoosac plateau).—BIGELOW, Auk, xix, 1902, 30 (Labrador, in spruce woods, n. to Aillik).—PREBLE, North Am. Fauna, no. 22, 1902, 129 (lower Echimamish, Kewatin, June).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 463.
- R[egulus] satrapa* CABANIS, Mus. Hein., i, 1850, 34.—COUES, Key N. Am. Birds, 2d ed., 1884, 260.—RIDGWAY, Man. N. Am. Birds, 1887, 567.
- Reg[ulus] satrapa* CABANIS, Journ. für Orn., 1858, 111 (description, etc.).
- [*Regulus*] *satrapa* COUES, Key N. Am. Birds, 1872, 78, part.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 4, part.
- Regulus satrapus* MCILWRAITH, Proc. Essex Inst., v, 1866, 85 (Hamilton, Ontario).—TRIPPE, Proc. Essex Inst., vi, 1871, 115.
- R[egulus] satrapa satrapa* HELLMAYR, Tierreich, 18 Lief., Mar., 1903, 12.
- Regulus ignicapillus satrapa* ERLANGER, Journ. für Orn., April, 1899, 284.
- Regulus tricolor* NUTTALL, Man. Orn. U. S. and Can., i, 1832, 420 (based on *Sylvia regulus* Wilson).—AUDUBON, Orn. Biog., ii, 1834, 476.—PEABODY, Rep. Orn. Mass., i, 1839, 314.—THOMPSON, Nat. Hist. Vermont, 1853, 84.
- (?) *Regulus americanus* GERHARDT, Naumannia, iii, 1853, 38 (no description; e. Florida; Georgia; Tennessee).
- "*Regulus reguloides* JARDINE, ed. Wilson's Am. Orn., i, 1832, 127."
- Regulus mystaceus* VIEILLLOT, Faune Franç., 1822, 231, part. (See Degland Orn. Eur., i, 1849, 307; Newton, ed. Yarrell's Hist. Brit. Birds, i, 1871, 457, footnote.)

REGULUS SATRAPA OLIVACEUS Baird.

WESTERN GOLDEN-CROWNED KINGLET.

Similar to *R. s. satrapa*, but wing and tail decidedly shorter, bill more slender, and olive of upper parts brighter, more greenish.

Adult male.—Length (skins), 90-100 (93.7); wing, 53-57 (54.9); tail, 38.5-42.5 (40.8); exposed culmen, 6.5-8 (7); tarsus, 15.5-18 (17.3); middle toe, 8-9 (8.5).^a

^aSeventeen specimens.

Adult female.—Length (skins), 90–95 (92.9); wing, 52.5–55 (53.5); tail, 38–42 (39.7); exposed culmen, 7–9 (7.9); tarsus, 16–18 (16.8); middle toe, 8–9 (8.6).^a

Western North America, from Rocky Mountains to the Pacific coast, southward in winter over highlands of Mexico to elevated districts of Guatemala; breeding from Colorado (near timber line), eastern Oregon (mountains near Fort Klamath), Sierra Nevada (south to Mount Whitney), Mount Shasta, etc., northward to Kenai Peninsula and Kadiak Island, Alaska.

Regulus cristatus (not of Vieillot) TOWNSEND, Journ. Ac. Nat. Sci. Phila., viii, 1839, 154 (Columbia R.).

Regulus satrapa (not of Lichtenstein) WOODHOUSE, in Rep. Sitgreaves' Expl. Zuffi and Col. R., 1853, 67, part (New Mexico).—HENRY, Proc. Ac. Nat. Sci. Phila., vii, 1855, 309 (New Mexico); xi, 1859, 106 (New Mexico).—(?) SCLATER, Proc. Zool. Soc. Lond., 1857, 212 (Orizaba, Vera Cruz); 1860, 25 (Orizaba).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 227, part (Fort Steilacoom, Washington); Cat. N. Am. Birds, 1859, no. 162, part; Review Am. Birds, 1864, 65, part (Simiahmoo and Steilacoom, Washington; Fort Crook, n. California).—SCLATER, Proc. Zool. Soc. Lond., 1859, 235 (Vancouver I.).—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 174 (Puget Sound, etc., Washington; resident).—LORD, Proc. Roy. Art. Inst. Woolw., 1864, 114 (British Columbia).—BROWN, Ibis, 1868, 420 (Vancouver I.).—DALL and BANNISTER, Trans. Chicago Acad. Sci., i, 1869, 277, part (Sitka; Kadiak).—COOPER, Am. Nat., iii, 1869, 32 (Montana); Orn. Cal., 1870, 32 (Sierra Nevada, 7,000 ft., Sept.).—AIKEN, Proc. Bost. Soc. N. H., xv, 1872, 195 (Colorado).—RIDGWAY, Bull. Essex Inst., v, 1873, 179 (Colorado); Orn. 40th Parallel, 1877, 410 (West Humboldt Mts., Nevada, Sept.).—INGERSOLL, Bull. Nutt. Orn. Club, i, 1876, 78, part (breeding habits, etc.).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 154 (Arizona); List Birds Arizona, 1875, 154.—BENDIRE, Proc. Bost. Soc. N. H., 1877, 111 (Camp Harney, Oregon, Nov.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1879, 48 part (Orizaba; Tierra Fria, near City of Mex-

^a Ten specimens.

Specimens from different localities average, respectively, as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Four adult males from Puget Sound, Washington	55.2	40.1	6.8	17.3	8.3
Four adult males from Sitka district, Alaska	54.3	40	7.1	17.6	8.3
Two adult males from Kenai Peninsula, Alaska	54.5	39.7	7.2	17.5	8.5
Four adult males from Kadiak, Alaska	55.5	40.6	7	17.2	8.7
Three adult males from Montana	54.5	40.5	7	16.6	8.5
Two adult males from southern Mexico	56.2	41.2	7.5	17.2	8.7
FEMALES.					
Two adult females from California	54.2	41	7.5	16.7	8.7
Three adult females from Washington	53.3	40.1	7.6	17.1	8.6
Three adult females from British Columbia	53.5	38.5	8.3	16.5	8.5
One adult female from Sitka	53.5	40	8.5	17	9
One adult female from Kenai Peninsula	53	39.5	8	17.5	8.5

- ico; near Los Encuentros, Vera Paz, Guatemala).—BELDING, Proc. U. S. Nat. Mus., i, 1879, 399 (Stockton, California, Oct., Nov.; Big Tree and Moran's, Calaveras Co., July).—DREW, Bull. Nutt. Orn. Club, vi, 1881, 244 (San Juan Co., Colorado, breeding at 11,500 ft.).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 82 part (w. side Rocky Mts.; Vancouver I.; British Columbia).—COOKE, Bull. 37, Col. State Agric. Coll., 1897, 123 (summer resid. in Colorado, breeding near timber-line).
- [*Regulus*] *satrapa* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 4, part.
- Regulus satrapus* COUES, Proc. Ac. Nat. Sci. Phila., 1866, 66 (Arizona?).
- [*Regulus satrapa*] variety *olivaceus* BAIRD, Review Am. Birds, July, 1864, 65, in text under *R. satrapa* (Simiahmoo, Washington; coll. U. S. Nat. Mus.).
- Regulus satrapa olivaceus* RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1890, 168; Nom. N. Am. Birds, 1881, no. 33a; Proc. U. S. Nat. Mus., xvi, 1893, 665 (Kadiak, Alaska).—COUES, Check List, 2d ed., 1882, no. 35.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 748a.—TOWNSEND (C. H.), Proc. U. S. Nat. Mus., x, 1887, 230 (Mount Shasta, at timber-line, in July).—MERRILL, Auk, v, 1888, 364 (Fort Klamath, Oregon, fall and winter; breeding in mountains above 5,500 ft.); xv, 1898, 21 (Fort Sherman, Idaho, resident).—FANNIN, Check List Birds Brit. Col., 1891, 44 (west of Cascade range).—LAWRENCE (R. H.), Auk, x, 1892, 47 (Grays Harbor, Washington, resid.).—FISHER (A. K.), North Am. Fauna, no. 7, 1893, 143 (San Luis Obispo, California, Nov.).—GRINNELL (J.), Auk, xv, 1896, 130 (Sitka, breeding); Check List Calif. Birds, 1902, 72 (California range).—CHAPMAN, Bull. Am. Mus. N. H., iii, 1900, 153 (coast British Columbia); xvi, 1902, 246 (Homer, Cook Inlet, Alaska).—BISHOP, North Am. Fauna, no. 19, 1900, 93 (Glacier, Alaska).—OSGOOD, N. Am. Fauna, no. 21, 1901, 80 (Cook Inlet, Alaska).—BARLOW, Condor, iii, 1901, 183 (Sierra Nevada, breeding from 3,700 ft. upward).
- R[egulus] s[atrapa] olivaceus?* COUES, Key N. Am. Birds, 2d ed., 1884, 260.
- R[egulus] s[atrapa] olivaceus* BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 464.
- R[egulus] satrapa olivaceus* RIDGWAY, Man. N. Am. Birds, 1887, 568.
- R[egulus] satrapa olivaceus* HELLMAYR, Tierreich, 18 Lief., Mar. 1903, 12.
- Regulus satrapa aztecus* (Lawrence, manuscript) RIDGWAY Man. N. Am. Birds, 1887, 591, in text (City of Mexico; coll. G. N. Lawrence); ed. 2, 1896, 612.—Cox, Auk, xii, 1895, 359 (Mount Orizaba).

REGULUS CUVIERII Audubon.

CUVIER'S KINGLET.

Much like *R. satrapa*, but forehead and a broad stripe across lores and behind eye black; crown-patch in male entirely vermilion red, without yellow border; length about 4.25, exposed culmen about .33, tarsus .75.

"Fatland Ford, on the Schuylkill River," Pennsylvania. (Only one specimen known to have been obtained, this by Audubon, on June 8, 1812.)

"Bill short, straight, subulate, very slender, compressed, with inflected edges; upper mandible nearly straight in its dorsal outline, the edges slightly notched close upon the slightly declinate acute tip; lower mandible straight, acute. Nostrils basal, elliptical, half closed above by a membrane, covered over by the feathers. The whole form slender. Legs rather long; tarsus slender, much compressed, longer

than the middle toe, covered anteriorly with a few indistinct scutella; toes scutellate, the lateral ones nearly equal and free; hind toe stouter; claws weak, compressed, arched, acute.

"Plumage very loose and tufty. Bristles at the base of the bill, a small decomposed feather covering the nostril. Wings of ordinary length, the third and fourth primaries longest. Tail of 12 feathers, emarginate.

"Bill black. Iris hazel. Feet yellowish brown. The general color of the upper parts is dull grayish olive. Forehead, lores, and a line behind the eye, black. A semilunar band of the same on the top of the head, the middle space vermilion. Wings and tail dusky, edged with greenish yellow. Secondary coverts tipped with grayish white. Under parts grayish white.

"Length, 4½ inches; extent of wings, 6; bill along the ridge nearly one-third, along the gap nearly one-half; tarsus, three-fourths." (Audubon's original description.)

Regulus cuvierii AUDUBON, Orn. Biog., i, 1832, 288, pl. 55 (Fatland Ford, on Schuylkill River, Pennsylvania, June 8, 1812; type lost); Synopsis, 1839, 82; Birds Am., oct. ed., ii, 1841, 163, pl. 131.—NUTTALL, Man. Orn. U. S. and Can., i, 1832, 416.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 2d ed., 1895, 333, "Hypothetical List," no. 26.

R[egulus] cuvierii GRAY, Gen. Birds, i, 1847, 175.—HELLMAYR, Tierreich, 18 Lief., 1903, 12.

Regulus cuvieri BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 228; Cat. N. Am. Birds, 1859, no. 163; Review Am. Birds, 1864, 66.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 75, pl. 5, fig. 7.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 32.—GADOW, Cat. Birds Brit. Mus., viii, 1883, 82, footnote.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, 357, "Hypothetical List," no. 26.

R[egulus] cuvieri RIDGWAY, Man. N. Am. Birds, 1887, 568.

C[orthylio] cuvieri CABANIS, Journ. für Orn., 1853, 83, footnote.

[Sylvia] cuvieri GRAY, Hand-list, i, 1869, 216, no. 3070.

REGULUS CALENDULA CALENDULA (Linnæus).

RUBY-CROWNED KINGLET.

Adult male in spring and summer.—Above plain grayish olive anteriorly, gradually assuming a more decided olive hue on back, the rump and upper tail-coverts more greenish olive; a large, concealed fan- or wedge-shaped patch of clear vermilion red (rarely varying to orange-red or salmon color) beginning at center of crown and overlapping occiput; wings and tail dusky, with light yellowish olive or olive-yellow edgings, the middle wing-coverts narrowly tipped with pale grayish olive, the greater coverts more broadly tipped with dull white (forming two bands across wing), the tertials broadly edged with dull whitish; secondaries crossed by a basal broad band of blackish, partly concealed by greater coverts; a broad whitish orbital ring, interrupted on upper eyelid, the eyelids themselves black; loreal region pale grayish; sides of head otherwise grayish olive, like sides of pileum,

on auricular region gradually fading downward and passing into pale grayish buffy on chin, throat, and chest, the remaining under parts similar but more yellowish, especially on flanks, the abdomen and under tail-coverts olive-whitish; bill and iris dark brown; legs and feet clear or dusky brown (in dried skins).

Adult male in autumn and winter.—Similar to the spring and summer plumage but more decidedly olivaceous above, more olive-buff below.

Adult female.—Similar to the adult male, but without the red crown-patch.

Young, first plumage (sexes alike).—Similar to the adult female, but upper parts browner (nearly hair brown), wing-bands tinged with brownish buffy, under parts less yellowish, and texture of plumage more lax.

Adult male.—Length (skins), 99–106 (102); wing, 56.5–61.5 (58.9); tail, 40.5–45 (42.8); exposed culmen, 7–9.5 (8.6); tarsus, 18–20 (19); middle toe, 9–10.5 (9.6).^a

Adult female.—Length (skins), 93–104 (100); wing, 54–58 (56.1); tail, 40.5–44 (42.2); exposed culmen, 7.5–9.5 (8.7); tarsus, 17.5–19.5 (18.7); middle toe, 9–10 (9.4).^a

^a Ten specimens from eastern United States.

Specimens from different geographic areas compare in average measurements as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Ten adult males from eastern United States	58.9	42.8	8.6	19	9.6
Four adult males from interior of Alaska	58.8	44.7	8.1	19	9
Ten adult males from Rocky Mountains (Wyoming to Sonora and Chihuahua)	60.5	45.7	8.4	18.7	9.1
Ten adult males from California	59.8	45.2	8.4	18.8	9.3
FEMALES.					
Ten adult females from eastern United States	56.1	42.2	8.7	18.7	9.4
Ten adult females from Rocky Mountains (Wyoming to Chihuahua and Sonora)	57.2	43.5	7.3	18.4	8.9
Nine adult females from California	56.7	42.7	8.1	18.7	9.2

Besides being larger, specimens from the Rocky Mountain district, especially those from Chihuahua, are paler and grayer than those from other portions of the continent; but California examples are nearly as large and are quite as dark as those from the East. It is possibly one or more subspecies may be made out, but with the material examined I am not able to do so satisfactorily. (See Brewster, *Bull. Mus. Comp. Zool.*, xli, 1902, 208.)

Since the above was written Mr. Joseph Grinnell has described a supposed new form of this species breeding in the mountains of southern California, which may or may not be the same as these large gray Rocky Mountain birds; but I have not seen specimens of Mr. Grinnell's bird (*Regulus calendula cineraceus* Grinnell, *Condor*, vi, no. 1, Jan., 1904, 25; type from Mt. Wilson, Los Angeles Co., California, in coll. J. Grinnell), and therefore am not prepared to express a decided opinion as to its status.

North America in general, in wooded districts, north to the limit of tree growth, in Labrador, northern Keewatin (Repulse Bay), Mackenzie, Yukon, and Alaska (to valley of Kowak River); breeding southward to Quebec (Lennoxville; Anticosti Island), northern Michigan (Mackinac Island), and high mountains of New Mexico (upper Pecos River), Arizona (White Mountains; Mogollon Mountains), and northern California (Mount Shasta), etc.; in winter southward entirely across United States, and over whole of Mexico to highlands of Guatemala (ridge above Totonicapam). Accidental in Greenland (Nenortalik, 1 specimen, 1860).

[*Motacilla*] *calendula* LINNÆUS, Syst. Nat., ed. 12, i, 1766, 337 (based on *Calendula pennsylvanica* Brisson, Orn., iii, 584).—FORSTER, Philos. Trans., lxii, 1772, 407 (Hudson Bay).—GMELIN, Syst. Nat., i, 1788, 994.

Motacilla . . . *calendula* FORSTER, Philos. Trans., lxii, 1772, 407 (Severn R.).

[*Sylvia*] *calendula* LATHAM, Index Orn., ii, 1790, 549.—GRAY, Hand-List, i, 1869, 216, no. 3068.

Sylvia calendula WILSON, Am. Orn., i, 1808, 83, pl. 5, fig. 3.

Regulus calendula LICHTENSTEIN, Verz. Doubl., 1823, 35.—BONAPARTE, Ann. Lyc.

N. Y., ii, 1826, 91; Geog. and Comp. List, 1838, 19.—NUTTALL, Man. Orn.

U. S. and Can., i, 1832, 415.—AUDUBON, Orn. Biog., ii, 1834, 546, pl. 195;

Synopsis, 1839, 83; Birds Am., oct. ed., ii, 1841, 168, pl. 133.—GAMBEL, Proc.

Ac. Nat. Sci. Phila., iii, 1846, 115 (California; Rocky Mts.).—WOODHOUSE,

in Rep. Sitgreaves' Expl. Zuffi and Col. R., 1853, 67 (Indian Territory;

Texas; New Mexico).—HENRY, Proc. Ac. Nat. Sci. Phila., vii, 1855, 309

(New Mexico); xi, 1859, 106 (do.).—SCLATER, Proc. Zool. Soc. Lond., 1857,

202 (Jalapa, Vera Cruz); 1858, 300 (La Parada, Oaxaca); 1859, 362 (Jalapa),

371 (Talca, Oaxaca); 1864, 172 (City of Mexico); Cat. Am. Birds, 1862, 11

(California).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 226; Cat. N. Am.

Birds, 1859, no. 161; Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 9

(Espia and Boca Grande, n. Mexico); Review Am. Birds, 1864, 66.—SCLATER

and SALVIN, Ibis, 1859, 8 (ridge above Totonicapam, Guatemala).—XANTUS,

Proc. Ac. Nat. Sci. Phila., 1859, 190 (Fort Tejon, California).—WILLIS, Ann.

Rep. Smithsonian. Inst. for 1858 (1859), 282 (Nova Scotia).—KENNERLY, Rep.

Pacific R. R. Surv., x, pt. iv, 1859, 24 (Aztec Mts. and Bill Williams Fork,

Arizona, Jan., Feb.).—HEERMANN, Rep. Pacific R. R. Surv., x, pt. vi, 1859, 43

(throughout California; Pima Village, Arizona).—COOPER and SUCKLEY, Rep.

Pacific R. R. Surv., xii, pt. ii, 1860, 174 (Washington, winter).—REINHARDT,

Ibis, 1861, 5 (Nenortalik, Greenland, 1 spec.).—COUES, Ibis, 1865, 163; Check

List, 1873, no. 21; 2d ed. 1882, no. 33; Birds N. W., 1874, 15; Birds Col. Val.,

1878, 92; Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 553 (descr. nest).—

DRESSER, Ibis, 1865, 476 (San Antonio, etc., Texas).—WIEZ, Proc. Bost. Soc.

N. H., x, 1866, 267 (Labrador).—BUTCHER, Proc. Ac. Nat. Sci. Phila., xx, 1868,

149 (Laredo, Texas).—DALL and BANNISTER, Trans. Chicago Acad. Sci., i, 1869,

276, part (Nulato, Alaska; habits).—COOPER, Orn. Cal., 1870, 33.—ALLEN,

Bull. Mus. Comp. Zool., ii, 1871, 260 (e. Florida, winter).—STEVENSON,

Prelim. Rep. U. S. Geol. Surv. Terr., 1871, 463 (Little Sandy and Green R.,

Wyoming).—MERRIAM, Rep. U. S. Geol. Surv. for 1872 (1873), 672 (Lower

Geyser Basin and Snake R., Wyoming, Aug., Sept.).—RIDGWAY, Bull. Essex

Inst., v, 1873, 179 (Colorado); vii, 1875, 12 (Carson City, Nevada, winter),

17 (Truckee Valley, Nevada, winter), 32 (Wahsatch Mts., Utah, breeding);

Orn. 40th Parallel, 1877, 409 (Nevada); Nom. N. Am. Birds, 1881, no. 30; Orn.

Illinois, i, 1889, 76; Auk, vii, 1890, 292 (descr. yellow-crowned specimen).—

- BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 75, pl. 5, fig. 9.—YARROW and HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 7 (North Creek, Utah, Sept.).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 40 (Utah, resident), 57 (Denver, Colorado, May), 72 (Fort Garland, Colorado, breeding at 10,000 ft.; descr. nest and eggs), 98 (White Mts., Arizona; breeding?), 155 (Arizona); Zool. Expl. W. 100th Merid., 1875, 164 (North Creek, Utah, Sept. 26; Fort Garland, Pagosa, and Sangre de Cristo, Colorado, May, June, Aug., Sept.; Tierra Amarillo, New Mexico, Sept.; Mount Graham and Camp Apache, Arizona, Sept., Oct.; habits; song); Auk, ii, 1885, 331 (upper Pecos R., New Mexico, breeding).—INGERSOLL, Bull. Nutt. Orn. Club, i, 1876, 77 (breeding habits; descr. nest and eggs).—BENDIRE, Proc. Bost. Soc. N. H., 1877, 111 (Blue Mts., Oregon, breeding at 6,500 ft.).—SCOTT (W. E. D.), Bull. Nutt. Orn. Club, iv, 1879, 91 (Lake Co., Colorado; descr. nest and eggs).—SENNETT, Bull. U. S. Geol. and Geog. Surv. Terr., v, 1879, 375 (Lomita Ranch, Texas, Apr. 11–May 13; measurements).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1879, 49 (Jalapa, Vera Cruz; La Parada and Talea, Oaxaca; City of Mexico; ridge above Totonicapam, Guatemala?).—MINOT, Bull. Nutt. Orn. Club, v, 1880, 225 (mountains of Colorado, breeding from 9,000 ft. to timber line).—DREW, Bull. Nutt. Orn. Club, vi, 1881, 87 (San Juan Co., Colorado, breeding at 7,500 to 10,500 ft.; descr. nest and eggs and young).—MERRILL, Bull. Nutt. Orn. Club, vi, 1881, 204 (Big Horn Mts., Montana, breeding; descr. nest and eggs).—BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 79 (Chiricahua Mts., Arizona, Mar.); Proc. Bost. Soc. N. H., xxii, 1883, 369 (Anticosti I., July); Bull. Mus. Comp. Zool., xli, 1902, 208 (Sierra de la Laguna, Lower California, winter; crit.).—GADOW, Cat. Birds Brit. Mus., viii, 1883, 85 (Repulse Bay, etc.).—CHAMBERLAIN, Auk, i, 1884, 90 (Lennoxville, Quebec, breeding; descr. nest and eggs).—BICKNELL, Auk, i, 1884, 134 (song; song period).—BECKHAM, Proc. U. S. Nat. Mus., viii, 1885, 625–628 (crit. on plumage of sexes).—AMERICAN ORNITHOLOGIST UNION, Check List 1886, no. 749.—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 133 (Teziutlan and Garita de Tlaxcalor, Puebla, Nov.).—TOWNSEND (C. H.), Proc. U. S. Nat. Mus., x, 1887, 230 (Mount Shasta, California; breeding?).—COOKE, Bird Migr. Miss. Val., 1888, 279 (dates, etc.; winters from s. Illinois and Kansas southward); Bull. 37, Col. Agric. Coll., 1897, 123 (Colorado; breeding from 7,000 ft. to timber line).—SWINBURNE, Auk, vii, 1890, 97 (White Mts., Arizona, breeding; descr. nest and eggs).—MEARNS, Auk, vii, 1890, 263 (Mogollon Mts., Arizona, breeding).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1890, 632 (Manitoba, migrant; song).—ANTHONY, Auk, ix, 1892, 368 (s. w. New Mexico, migr.).—JOUY, Proc. U. S. Nat. Mus., xvi, 1894, 775 (Soledad, San Luis Potisi, Nov. 27).—NEHRING, Our Native Birds, i, 1893, 98.—FISHER (A. K.), North Am. Fauna, no. 7, 1893, 142 (localities in s. California and Nevada).—TODD, Auk, x, 1893, 206 (District of Columbia, Dec. 5, 1892).—WHITE, Auk, x, 1893, 229 (Mackinac I., Michigan, breeding).—CHAPMAN, Bull. Am. Mus. N. H., x, 1898, 22 (Jalapa, Vera Cruz), 38 (Las Vegas, Vera Cruz, 8,000 ft.).—BEYER, Proc. Louis. Soc. Nat. for 1897–1899 (1900), 43 (Louisiana, winter resid.).—GRINNELL (J.), Pacific Coast Avifauna, i, 1900, 61 (Kowak R., Alaska, June).—BISHOP, North Am. Fauna, no. 19, 1900, 93 (Log Cabin, Bennett, Lake Lebarge, etc., Alaska).—OSGOOD, North Am. Fauna, no. 21, 1901, 80 (Fort Kenai, Alaska).—PREBLE, North Am. Fauna, no. 22, 1902, 129 (Norway House, etc., Kewatin, June).
- R[egulus] calendula* GAMBEL, Journ. Ac. Nat. Sci. Phila., ii, 1847, 36 (Rocky Mts.; California).—HENSHAW, Orn. Rep. Wheeler's Surv., 1879, 287 (e. slope Sierra Nevada, summer; song).—COUES, Key N. Am. Birds, 2d ed., 1884, 250.—RIDGWAY, Man. N. Am. Birds, 1887, 568.

- [*Regulus*] *calendula* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 4.
Regulus calundula COUES, Proc. Ac. Nat. Sci. Phila., 1861, 219 (Rigolet, Labrador).
Regulus calendulus BONAPARTE, Journ. Ac. Nat. Sci. Phila., iv, 1824, 186.—PEABODY, Rep. Orn. Mass., 1839, 314.—THOMPSON, Nat. Hist. Vermont, 1853, 84.—GOULD, Proc. Zool. Soc. Lond., 1858, 290 (Loch Lomondside, Scotland, accidental).—COUES, Proc. Ac. Nat. Sci. Phila., 1866, 66 (Fort Whipple, Arizona; breeding?).—MAYNARD, Birds Florida, 1872, 27.—ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 161 (Mount Lincoln, Colorado; breeding), 166 (Ogden, Utah, Sept.).—TRIPPE, in Coues' Birds N. W., 1874, 229 (mountains of Colorado, breeding from 9,500 ft. to timber line; habits).
R[egulus] calendula calendula RIDGWAY, Bull. U. S. Geol. and Geog. Surv. Terr., ii, no. 2, Apr. 1, 1876, 184.—HELLMAYR, Tierreich, 18, Lief., 1903, 14.
Regulus calendula calendula GRINNELL (J.), Pacific Coast Avifauna no. 3, June 25, 1902, 72.—BAILEY (H. F.), Condor, iv, 1902, 81 (Kenai, Alaska, breeding; descr. nest and eggs).
[Reguloides] calendula BONAPARTE, Consp. Av., i, 1850, 292.
Ph[ylobasileus] calendula CABANIS, Mus. Hein., i, 1850, 33.
[Phyllobasileus] calendula HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1882, 24.
[Torthylia] calendula CABANIS, Journ. für Orn., i, 1853, 83, footnote.
[Parus] griseus GMELIN, Syst. Nat., i, 1788, 1010 ("Greenland;" based on *Parus griseus vertice rubra* Muller, Zool., '34; *Crimson-crowned Titmouse* Latham, Synopsis, ii, pt. 2, 539).
Regulus rubineus VIEILLLOT, Ois. Am. Sept., ii, 1807, 49, pls. 104, 105 (new name for *Motacilla calendula* Linnæus).—LESSON, Traité d'Orn., 1831, 421.
(?) *Regulus calendula cineraceus* GRINNELL (J.), Condor, vi, no. 1, Jan., 1904, 25 (Mt. Wilson, Los Angeles Co., California; coll. J. Grinnell).

REGULUS CALENDULA GRINNELLI Palmer.

SITKA RUBY-CROWNED KINGLET.

Similar to *R. c. calendula*, but with shorter wing, larger bill, and decidedly darker coloration.

Adult male.—Length (skins), 92–105 (98); wing, 55.5–57 (56.5); tail, 41.5–44.5 (42.9); exposed culmen, 8–9.5 (8.7); tarsus 18–19 (18.7); middle toe, 8.5–10 (9.3).^a

Adult female.—Length (skins), 96–110 (98); wing, 53.5–56 (54.5); tail, 40–44 (41.8); exposed culmen, 8–9.5 (8.7); tarsus, 17.5–18.5 (18.1); middle toe, 9–10 (9.3).^b

Pacific Coast district, breeding from British Columbia to head of Lynn Canal (Skagway, etc.) and Yakutat Bay (probably to Prince William Sound), Alaska; occasionally migrating southward in winter to middle California (San Mateo and Monterey counties).

Regulus calendula (not *Motacilla calendula* Linnæus) BROWN, Ibis, 1868, 420 (Vancouver I.).—DALL and BANNISTER, Trans. Chicago Acad. Sci., i, 1869, 276, part (Sitka, Alaska).—CHAPMAN, Bull. Am. Mus. Nat. Hist., iii, 1890, 154, part (British Columbia; crit.).—FANNIN, Check List Birds Brit. Col., 1891, 44, part.—(?) KOBBE, Auk, xvii, 1900, 357 (Cape Disappointment, Washington, resident).

^a Six specimens.^b Four specimens.

Regulus calendula grinnelli PALMER (W.), Auk, xiv, Oct., 1897, 399 (Sitka, Alaska; coll. U. S. Nat. Mus.).—GRINNELL (J.), Auk, xv, 1898, 130 (Sitka, breeding); Condor, iii, 1901, 48 (Pescadero Creek Canyon, San Mateo Co., California, Nov.; crit.); Pacific Coast Avifauna, no. 3, 1902, 72.—BISHOP, North Am. Fauna, no. 19, 1900, 93 (Skagway, Haines, Glacier, and Sitka, Alaska).—OSGOOD, North Am. Fauna, no. 21, 1901, 50 (Queen Charlotte Islands).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xviii, 1901, 308 (check list no. 749a).

R[egulus] calendula grinnelli HELLMAYR, Tierreich, 18 Lief., 1903, 15.

REGULUS CALENDULA OBSCURUS Ridgway.

DUSKY KINGLET.

Similar to *R. c. grinnelli*, but still darker; red crown-patch more pinkish red; wing shorter, bill and feet larger.

Adult male.—Length (skins), 99–101 (100); wing, 53.5–56 (54.6); tail, 41–43.5 (42.2); exposed culmen, 10–10.5 (10.1); tarsus, 19.5–20 (19.8); middle toe, 9–10 (9.5).^a

Adult female.—Length (skin), 99.5; wing, 50; tail, 39; exposed culmen, 10; tarsus, 20; middle toe, 9.5.^b

Guadalupe Island, Lower California.

Regulus calendula obscurus RIDGWAY, Bull. U. S. Geol. and Geog. Surv. Terr., ii, no. 2, Apr. 1, 1876, 184 (Guadalupe I., Lower California; coll. U. S. Nat. Mus.).

R[egulus] calendula obscurus HELLMAYR, Tierreich, 18 Lief., 1903, 15.

Regulus obscurus RIDGWAY, Bull. Nutt. Orn. Club, ii, July, 1877, 59, 61; Nom. N. Am. Birds, 1881, no. 31.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 750.—BRYANT, Bull. Cal. Acad. Sci., no. 6, 1877, 314 (habits; descr. song, nest, eggs, etc.).

R[egulus] obscurus RIDGWAY, Man. N. Am. Birds, 1887, 568.

Genus POLIOPTILA Sclater.

Culicivora (not of Swainson, 1827^c) SWAINSON, Classif. Birds, ii, 1837, 243. (Type, *C. atricapilla* Swainson, = *Sylvia leucogastra* Maximilian.)

Polioptila SCLATER, Proc. Zool. Soc. Lond., 1855, 11. (Type, *Motacilla caerulea* Linnaeus.)

Very small Sylviidae (?) (wing not more than 55 mm.) with tail equal to or longer than wing and rounded, acrotarsium distinctly scutellate, color plain bluish gray above and white or pale gray beneath, the tail black with more or less of white on outermost rectrices.

Bill decidedly shorter than head, slender, depressed and rather broad at base, where its depth is only about half its width; exposed culmen longer than middle toe without claw, nearly straight for basal half or more, rather abruptly decurved terminally, the tip of

^a Four specimens.

^b One specimen.

^c *Culicivora* Swainson, Zool. Journ., iii, no. 11, Dec., 1827, 359. (Type, *Muscicapa stenura* Temminck.) (Tyrannidae.)

the maxilla minutely uncinatc; maxillary tomium faintly concave or nearly straight, distinctly notched subterminally; gonys straight or very faintly convex, about as long as distance from nostril to tip of maxilla. Nostril wholly exposed, rather large, longitudinal, distinctly operculate. Rictal bristles well developed; latero-frontal plumules short, erect, not bristly pointed. Wing moderate, rather rounded at tip; eighth, seventh and sixth primaries longest and nearly equal, ninth about equal to fourth, tenth less than half as long as ninth. Tail about as long as wing (sometimes a little shorter or somewhat longer), much rounded, the rectrices rather narrow, with broadly rounded tip. Tarsus long and slender, about one-third as long as wing, twice as long as middle toe without claw, the acrotarsium distinctly scutellate; lateral toes about equal, their claws reaching to base of middle claw; hallux (without claw) about as long as lateral toes (without claws), its claw decidedly shorter than the digit.

Coloration.—Above plain gray or bluish gray, the pileum sometimes black, or partly black, in adult males; tail black with more or less of white on outermost rectrices; under parts white or pale gray. Female duller in color than male (never with black on pileum), the young essentially like adult females.

Nidification.—Nest attached to branches of trees, deeply cup-shaped, compact, composed of plant fibers, spiders' webs, mosses, and other soft materials the outside often "stuccoed" or ornamented with small bright-colored lichens. Eggs pale greenish blue or bluish white speckled with reddish brown.

Range.—Tropical and warm-temperate portions of America, except Galapagos Archipelago and greater part of West Indies; north to and including Lower Austral life-zone of United States; Bahamas; Cuba. (About twenty species and subspecies.)

The following key to the species and subspecies of this genus includes several South American forms which are closely related to one of the Mexican species, though in reality not so much so as has very generally been supposed. I must frankly admit the uncertainty which I feel concerning the Central American forms, not only with regard to the number which should be recognized, but also as to their relationship toward one another. At least five times as many specimens as I have been able to examine would be necessary to enable one to feel any considerable confidence in the results reached after careful study; ten times as many specimens would, of course, be better. The present treatment of these Central American forms is, therefore, to be considered as tentative. Of only one thing do I feel quite certain: That is, that I believe, more strongly than ever, that those authors are mistaken who contend that *P. nigriceps* Baird occurs in any part of South America. I have been unable to trace it southward of the State of Oaxaca, in southern Mexico, except for a single specimen in

the National Museum collection said to have been taken on the "Pacific coast of Central America"—a locality too indefinite to be considered in a case of this kind. Both the Bogota black-capped form (*P. nigriceps anteocularis* Hellmayr) and the Venezuelan form (*P. plumbeiceps* Lawrence) have by the latest authority on the genus^a been synonymized with *P. nigriceps*; but I am prepared to prove that, at least so far as the latter is concerned, this is an error. Comparison of an ample series of adult females of *P. plumbeiceps* with an equally good one of the same sex of *P. nigriceps* shows that the two forms are very distinct, the female of *P. plumbeiceps* having invariably the conspicuous dusky (sometimes nearly black) postocular patch of *P. leucogastra*, a character never seen in *P. nigriceps*. Of *P. anteocularis* I have not been able to see a female; but I feel reasonably sure that its affinities will also be found to be with *P. leucogastra* rather than with *P. nigriceps*.

P. nigriceps is of very uniform character throughout its range, which extends from southern Sonora to Oaxaca, in western Mexico; but from Oaxaca and Yucatan southward to the Isthmus of Panama all the forms of this genus are involved in much uncertainty. *P. albiventris* is apparently confined to Yucatan; this is, normally, a form without any white on lores or about the eye, in this respect agreeing with *P. nigriceps*; but some specimens show more or less of white on the lores and behind or above the eye, thus suggesting intergradation or hybridization with *P. albiloris* or *P. superciliaris*, both of which occur in the adjacent territory of Guatemala. Under the names of *P. albiloris* and *P. bilineata*, two quite easily recognized forms have in each case been included; under that of *P. albiloris* a smaller and shorter-tailed form, having a black line across the white lores, occurring in western Nicaragua and Costa Rica; and under that of *P. bilineata*, (1) a form resembling the last mentioned in coloration, except that it has no black line on the white lores, and with a distinct white superciliary stripe, besides having the tail still shorter, and (2) a smaller, much shorter tailed, darker colored bird having the same pattern of head markings. The last mentioned, which is *P. superciliaris* Lawrence, extends, apparently without variation, from the Panama Railroad to Guatemala; the other, which is probably *P. bilineata* (Bonaparte), extends from Chiriqui to the province of Santa Marta, Colombia, thus overlapping for a short distance the range of *P. superciliaris*, within which occur two other forms—*P. albiloris* in Guatemala and *P. bairdi* in western Nicaragua and Costa Rica.

It will thus be seen that the case is much complicated, and that it would not be advisable in the present state of our knowledge to attempt to distinguish certain of these forms as subspecies rather than species, but much better to leave the final adjustment of their relationships to some one who may be able to examine a satisfactory amount of material.

^a Hellmayr, in Tierreich, 18 Lief., 1903, 25, 26.

KEY TO THE SPECIES AND SUBSPECIES OF *POLIOPTILA*.

- a. Tail rounded or slightly graduated, the lateral retrices more than six-sevenths as long as middle pair; retrices broader.
- b. Outermost rectrix with more than terminal half white.
- c. Head with more or less of black.
 - d. Black of head confined to a narrow U-shaped mark, extending across forehead and along sides of crown.
 - e. Forehead and crown within U-shaped black mark bluish gray, not distinctly glossed. (*Polioptila caerulea*.)
 - f. Paler, the under parts white, or grayish white, shaded with pale bluish gray on sides.
 - g. Larger (male averaging, wing more than 49, tail more than 50, tarsus more than 17).
 - h. Black at base of lateral rectrix more restricted, usually concealed by under tail-coverts; bluish gray of upper parts slightly clearer and bluer; averaging, wing 52.1, tail 50.3, exposed culmen 9.9, tarsus 17.2. (Eastern United States, south in winter to Bahamas, Cuba, and Guatemala.)
 - Polioptila caerulea caerulea*, adult male (p. 716)
 - hh. Black at base of lateral rectrix, more extended, showing beyond longest under tail-coverts; bluish gray of upper parts slightly duller; adult male averaging, wing 49.9, tail 51.7, exposed culmen 10.2, tarsus 17.3. (Southwestern United States; western Mexico in winter.) *Polioptila caerulea obscura*, adult male (p. 720)
 - gg. Smaller, except bill (male averaging, wing 47.5, tail 46.5, exposed culmen 10.3, tarsus 16.3). (Southeastern Mexico to Guatemala.)
 - Polioptila caerulea mexicana*, adult male (p. 722)
 - ff. Darker, the under parts light bluish gray, only the abdomen, anal region and under tail-coverts white. (Bahamas; Cozumel Island and adjacent coast of Yucatan.)
 - Polioptila caerulea cassiogastra*, adult male (p. 723)
 - ee. Forehead and crown, within the U-shaped black mark, blackish slate, distinctly glossed with greenish blue. (States of Oaxaca and Chiapas, southeastern Mexico.) *Polioptila nelsoni*, adult male (p. 724)
 - dd. Black of head covering at least greater part of pileum.
 - e. Lores at least partly white.
 - f. Superciliary region black (sometimes a white spot or streak above posterior angle of eye, but this, if present, not confluent with white of lores).
 - g. Lores entirely white; larger (wing averaging 49, tail 52.6). (Oaxaca to Guatemala.) *Polioptila albiloris*, adult male (p. 725)
 - gg. Lores not entirely white (a black line crossing from rictus to anterior angle of eye); smaller (wing averaging 47.5, tail 46.8). (Western Nicaragua and Costa Rica.)
 - Polioptila bairdi*, adult male (p. 726)
 - ff. Superciliary region white (no black on lores).
 - g. Larger (wing averaging 49, tail 43); back, etc., paler gray, under parts more purely white, and tertials edged with white. (Veragua to Province of Santa Marta, Colombia.)
 - Polioptila bilineata*, adult male (p. 726)
 - gg. Smaller (wing averaging 46.6, tail 39.7); back, etc., darker gray, under parts strongly shaded with gray, and tertials edged with pale gray. (Isthmus of Panama to Guatemala.)
 - Polioptila supercilialis supercilialis*, adult male (p. 727)

ee. Lores (normally) entirely black.^a

f. Wing shorter (averaging 45.3); under parts entirely pure white, or with sides very faintly tinged with very pale bluish gray. (Yucatan.)

Polioptila albiventris, adult male (p. 729).

ff. Wing longer (averaging 48 or more); white of under parts strongly shaded on chest and sides with pale bluish gray.

g. Gray of upper parts paler (as in *P. albiventris* and *P. albiloris*). (Western Mexico, from Oaxaca to Sonora.)

Polioptila nigriceps, adult male (p. 729).

gg. Gray of upper parts darker.

h. Tail averaging shorter than wing (wing averaging 48.3, tail 47.8); chest more strongly shaded with gray. (Venezuela.)

Polioptila plumbeiceps, adult male (extralimital);^b

h. Tail averaging longer than wing; chest more faintly shaded with gray.

i. Wing averaging 51.3, tail 52.5; less white on lateral rectrices. (Central Colombia.)

Polioptila anteocularis, adult male (extralimital);^c

^aSometimes, apparently only in winter (possibly only in immature) specimens there is more or less admixture of whitish or pale gray on the lores. In some examples of *P. albiventris* there is a more or less marked indication of a white postocular or supra-auricular streak, possibly indicating intermixture or intergradation with *P. albiloris* or *P. superciliaris*.

^b*Polioptila plumbeiceps* Lawrence, Proc. Ac. Nat. Sci. Phila., xvii, 1865, 37 (Venezuela; coll. G. N. Lawrence; =young male); Richmond, Proc. U. S. Nat. Mus., xviii, 1896, 681 (Margarita I., Venezuela; crit.); Robinson, Proc. U. S. Nat. Mus., xviii, 1896, 685 (La Guayra, Venezuela); Robinson and Richmond, Proc. U. S. Nat. Mus., xxiv, 1901, 178 (coast of Venezuela); Clark (A. H.), Auk, xix, 1902, 266 (Margarita I.; descr. nest and eggs).—*Polioptila nigriceps* (not of Baird) Salvin and Godman, Biol. Centr.-Am., Aves, i, 1879, 52, part (Venezuela); Sharpe, Cat. Birds Brit. Mus., x, 1885, 447 (Caracas and Cumaná, Venezuela); Berlepsch and Hartert, Novit. Zool., ix, 1902, 9 (localities in Venezuela; excl. syn. *anteocularis* Hellmayr).—*P[olioptila] nigriceps nigriceps* Hellmayr, Novit. Zool., vii, 1900, 538, part (Venezuela); Tierreich, 18 Lief., 1903, 25, part (Venezuela).—*P[olioptila] leucogastra* (not *Sylvia leucogastra* Maximilian) Ridgway, Proc. U. S. Nat. Mus., v, 1882, 387, 388, 389, part (Venezuela).—*Polioptila leucogastra* Allen, Bull. Am. Mus. N. H., iv, 1892, 51 (Carúpano, Venezuela).—*Polioptila sclateri* Sharpe, Cat. Birds Brit. Mus., x, 1885, 449 (Venezuela; coll. Brit. Mus.).

The resemblance of the female of this form to that of *P. leucogastra* shows it to be much more nearly related to the latter than to *P. nigriceps*.

^c*Polioptila leucogastra* (not *Sylvia leucogastra* Maximilian) Sclater, Proc. Zool. Soc. Lond., 1855, 12, part (Colombia); Ridgway, Proc. U. S. Nat. Mus., v, 1882, 387, 388, 389, part (Bogotá).—*Polioptila nigriceps* (not of Baird) Salvin and Godman, Biol. Centr.-Am., Aves, i, 1879, 52, part (Colombia); Sharpe, Cat. Birds Brit. Mus., x, 1885, 447, part (Bogotá, Colombia).—*P[olioptila] nigriceps nigriceps* Hellmayr, Tierreich, 18 Lief., March, 1903, 25, part (Bogotá).—*[Polioptila nigriceps] anteocularis* Hellmayr, Novit. Zool., vii, no. 3, Dec. 8, 1900, 537, in text (Bogotá).—*P[olioptila] nigriceps anteocularis* Hellmayr, Novit. Zool., vii, no. 3, Dec. 8, 1900, 538 (Bogotá, Colombia; coll. Berlin Mus. and Tring Mus.).

According to Simons the adult male of this form has the iris "bright chrome yellow," that of the female being "yellowish" (Salvin and Godman, Ibis, 1880, 116).

I have not seen the female, and therefore can not say whether, like those of *P. plumbeiceps* and *P. leucogastra* it differs from that of *P. nigriceps* in having the postocular region blackish, or not.

- i. Wing averaging 48.4, tail 52.4; more white on lateral rectrices. (Eastern Brazil.)

Poliophtila leucogastra, adult male (extralimital)^a

- cc. Head without any black.^b
 d. Gray of pileum not darkening toward auricular region.
 e. No white superciliary stripe; tail longer (averaging more than 43).
 f. Auricular region with at least upper half pale gray, not conspicuously different from darker gray of occiput, and fading gradually into paler gray or grayish white of lower portion.
 g. Bill smaller (exposed culmen averaging less than 10.5); outermost primary much smaller, much less than half as long as next (ninth).
 h. Larger, with smaller bill (wing averaging more than 50, exposed culmen less than 10).
 i. Black at base of lateral rectrices more restricted; gray of upper parts clearer, white of under parts less grayish.

Poliophtila caerulea caerulea adult female (p. 717)

- ii. Black at base of lateral rectrices more extended; gray of upper parts duller, white of under parts grayer.

Poliophtila caerulea obscura, adult female (p. 720)

- hh. Smaller, with larger bill (wing averaging less than 48, culmen averaging 10 or more).

- i. Smaller and paler (in coloration like *P. c. caerulea*); wing averaging 45.3, tail 43.5, tarsus 16.5.

Poliophtila caerulea mexicana, adult female (p. 722)

- ii. Larger and darker; wing averaging 47 or more, tail more than 50, tarsus 17 or more.

- j. Upper parts bluer slate-gray; under parts pale bluish gray (white only on abdomen, anal region, and under tail-coverts).

Poliophtila caerulea caesiogastra, adult female (p. 723)

- jj. Upper parts duller slate-gray; under parts white medially.

Poliophtila nelsoni, adult female (p. 724)

- gg. Bill larger (exposed culmen averaging more than 11); outermost primary much larger, at least half as long as the next (ninth).

Poliophtila nigriceps, adult female (p. 729)

- ff. Auricular region white, or grayish white, abruptly and strongly contrasted with a dusky postocular streak, above which is a narrow white or whitish streak.

^a*Sylvia* *leucogastra* Maximilian, Beitr. Naturg. Bras., iii, pt. 2, 1831, 710 (Province of Bahia, e. Brazil; type in coll. Am. Mus. Nat. Hist.).—*Poliophtila leucogastra* Selater, Proc. Zool. Soc. Lond., 1855, 12, part (Bahia; Montevideo?); Sharpe, Cat. Birds Brit. Mus., x, 1885, 446 (Bahia and Pernambuco, Brazil).—*Poliophtila leucogastra* Ridgway, Proc. U. S. Nat. Mus., v, 1882, 387, 388, 389, part (Bahia; crit.); Hellmayr, Novit. Zool., vii, 1900, 536, in text (crit.); viii, 1901, 360 (diagnosis); Tierreich, 18 Lief., 1903, 25.—*Culicivora atricapilla* Swainson, Zool. Illustr., new ser., ii, 1831, pl. 57 (no locality mentioned).—*Culicivora dumicola* (not *Sylvia dumicola* Vieillot) Bonaparte, Consp. Av., i, 1850, 316, part; *Culicivora dumicola* Cabanis Mus. Hein., i, 1850, 34.

^bIn the adult females of *P. leucogastra* and *P. plumbeiceps* (probably also *P. anteocularis*, which, however, I have not seen) the deep slate-gray or slate color of the pileum gradually darkens into nearly black on the upper portion of the auricular region; but there is no distinct, sharply defined black mark or "hood" as in section c.

g. Tail longer (averaging 48).

Polioptila albiloris, adult female (p. 735).

Polioptila albiventris, adult female (p. 729) ^a

gg. Tail shorter (averaging 43) .. *Polioptila bairdi*, adult female (p. 726)

ee. A white superciliary stripe.

f. Larger (wing 45.5-47.5, tail 42-43.5).

g. Much paler, the upper parts clear bluish gray or plumbeous, the under parts mostly white. . . *Polioptila bilineata*, adult female (p. 735)

gg. Much darker, the upper parts slate color (nearly slate-black on pileum), the under parts french gray or cinereous, white only on abdomen, hinder flanks, anal region, and under tail-coverts. (Highlands of Costa Rica.).

Polioptila superciliaris magna, adult female (p. 728)

ff. Smaller (wing 41.5-44, tail 36.5-40). (Coloration nearly as in *P. a magna*, but not quite so dark.)

Polioptila superciliaris supercilicris, adult female (p. 727)

dd. Gray of pileum darkening postero-laterally into blackish slate or nearly black next to upper margin of auricular region, producing a conspicuous dusky postocular patch.

e. Wing and tail shorter (wing 45.7, tail 45.1); less white on lateral rectrices.

Polioptila plumbeiceps, adult female (extralimital) ^b

ee. Wing and tail longer (wing averaging 46.5, tail 48.7); more white on lateral rectrices. *Polioptila leucogastra*, adult female (extralimital) ^c

bb. Outermost rectrix with much less than terminal fourth white.

c. Outermost rectrix with outer web wholly white, except basal third (more or less); paler, the gray of upper parts bluish slate-gray or plumbeous, the under parts grayish white or very pale gray. (Southern Texas to southern California, etc., and northern Mexico.) *Polioptila plumbea* ^d (p. 731)

cc. Outermost rectrix, with outer web, merely edged with white; darker, the gray of upper parts deep slate-gray or slate color, the under parts light gray. (Coast district of California and northern Lower California.)

Polioptila californica ^d (p. 734)

aa. Tail very much graduated, the lateral rectrices only about half as long as middle pair. (Cuba.) *Polioptila lembeyei* ^e (p. 735)

POLIOPTILA CÆRULEA CÆRULEA (Linnaeus).

BLUE-GRAY GNATCATCHER.

Adult male.—Pileum and hindneck plain bluish gray or grayish blue, the back, scapulars, rump, and lesser wing-coverts slightly

^a I can not distinguish the supposed female of *P. albiventris* from that of *P. albiloris*, both coloration and dimensions appearing quite the same. The only specimen examined is from Progreso, Yucatan, from which locality all males examined are *P. albiventris*; but it is not impossible the specimen in question may in reality be an example of *P. albiloris* which has straggled from its usual habitat.

^b See footnote ^b on p. 714.

^c See footnote ^c on p. 714.

^d Adult males of these two species have the pileum glossy blue-black, as in *P. nigriceps*, *P. albiventris*, etc.

^e The adult male (adult female also?) of this species has a curved black line bordering upper and posterior margin of the auricular region.

^f The color is not nearly approximated by any in the author's Nomenclature of Colors; it is intermediate between plumbeous and azure blue, as there represented.

paler and less bluish; anterior portion of forehead and sides of forehead and crown black, forming a conspicuous U-shaped mark; wings dull slate color with pale gray edgings, these much broader and much paler gray (sometimes whitish) on tertials; upper tail-coverts and tail black, the lateral rectrices extensively white, with blackish shafts, the white occupying the whole of the exposed portion of both webs on the outermost rectrix, extending more nearly to base on outer web than on inner, the second rectrix with terminal half (approximately) white, the third broadly tipped with white; sides of head (including lores, superciliary stripe, and auricular region) pale bluish gray or grayish blue, becoming paler below; a white orbital ring; under parts white, the throat, chest, and sides, especially the chest, faintly shaded with pale bluish gray; bill black; iris brown; legs and feet black or dusky; length (skins), 100–112 (107.3); wing, 49–54.5 (52.1); tail, 48–54 (50.3); exposed culmen, 9–11 (9.9); tarsus, 16.5–18 (17.2); middle toe, 8.5–9 (8.9).^a

Adult female.—Similar to the adult male, but gray of upper parts less bluish (between plumbeous and slate-gray), and without the U-shaped mark on forehead and sides of crown; length (skins), 102–112 (106.1); wing, 50–52 (50.9); tail, 47.5–54 (50); exposed culmen, 9–10.5 (9.7); tarsus, 16–18 (17.2); middle toe, 8.5–9 (8.9).^b

Young male in first autumn and winter.—Similar to the adult female, but gray of upper parts more bluish.

Young female in first autumn and winter.—Similar to the adult female, but gray of upper parts duller (light mouse gray).

Young, first plumage.—Similar to the young female in first autumn and winter, but gray of upper parts paler and more brownish (nearly smoke gray), and texture of plumage much looser.

Eastern United States; north (breeding) to New Jersey (Bridgeton),

^a Twenty-four specimens.

^b Thirteen specimens.

Specimens from different geographic areas average, respectively, as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Nine adult males from Maryland and District of Columbia.	52.1	50.6	9.9	17.5	9
One adult male from Florida (April 4)	50	50	10	17.5	9
Four adult males from Mississippi and Louisiana (breeding) ..	50.7	48.5	10.1	16.9	8.7
Nine adult males from Tennessee to Illinois and Indiana ..	52.8	50.7	9.8	17.1	8.9
One adult male from Texas (San Antonio, June)	53	50.5	10	16.5	8.5
FEMALES.					
Nine adult females from Maryland and District of Columbia.	50.9	49.4	9.7	17.3	9
Two adult females from Illinois and Tennessee	50.5	50.7	10	17.2	8.7
One adult female from Louisiana (March 31)	52	53	10.5	17.5	9
One adult female from Texas (San Antonio, March 29)	50	51.5	9	16	8.5

southeastern and southwestern Pennsylvania (Washington, Allegheny, and Perry counties), southern Ontario, southern Michigan (Washtenaw County), northern Illinois, southern Iowa (Decatur and Mahaska counties) and eastern Nebraska, occasionally or accidentally to Long Island, Connecticut, Rhode Island (Providence); Massachusetts (Cape Cod, Falmouth, Magnolia, etc.), Maine (Portland), northern Michigan (Mackinac Island), and Minnesota (Minneapolis); breeding southward to Florida, Louisiana, and southern Texas (Brownsville, etc.); wintering in Florida and other Gulf States and southward to Bahamas, Cuba, and eastern Mexico to Yucatan and Guatemala.

[*Motacilla*] *cerulea* LINNÆUS, Syst. Nat., ed. 12, i, 1766, 337 (based on *Motacilla parva cerulea* Edwards, Gleanings Nat. Hist., ii, 194, pl. 302).

[*Motacilla*] *caerulea* GMELIN, Syst. Nat., i, pt. 2, 1788, 992.

[*Sylvia*] *cerulea* LATHAM, Index Orn., ii, 1790, 540.

Muscicapa cerulea WILSON, Am. Orn., ii, 1810, 164, pl. 18, fig. 5.—AUDUBON, Orn. Biog., i, 1831, 431, pl. 84.

M[uscicapa] cerulea BONAPARTE, Journ. Ac. Nat. Sci. Phila., iv, 1824, 172 (refers it to genus *Sylvia*).

Culicivora cerulea JARDINE, ed. Wilson's Am. Orn., i, 1832, 304.—AUDUBON, Birds Am., oct. ed., i, 1840, 244, pl. 75.—WOODHOUSE, in Rep. Sitgreaves' Expl. Zuni and Col. R., 1853, 67 (Indian Territory; Texas).

Culicivora cerulea D'ORBIGNY, in La Sagra's Hist. Nat. Cuba, Ois., 1838, 76.—BREWER, Proc. Bost. Soc. N. H., vii, 1860, 306 (Cuba).

C[ulicivora] cerulea GRAY, Gen. Birds, i, 1848, 176.

[*Culicivora*] *caerulea* BONAPARTE, Consp. Av., i, 1850, 316.—HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1882, 24.

Culicivora caerulea GUNDLACH, Journ. für Orn., 1861, 407 (Cuba).

C[ulicivora] caerulea CABANIS, Mus. Hein., i, 1850, 34 (North America; Jalapa^a).

Culicivora caerulea GUNDLACH, Journ. für Orn., 1855, 471 (Cuba).

Poliophtila cerulea SCLATER, Proc. Zool. Soc. Lond., 1855, 11 (monogr.); Cat. Am. Birds, 1862, 12.—HAYDEN, Trans. Am. Philos. Soc., xii, 1863, 164 (Bald L. Nebraska; Fort Riley, Kansas).—BAIRD, Review Am. Birds, 1864, 74, part.—BRYANT, Proc. Bost. Soc. N. H., 1866, 69 (Fortune I. and Inagua, Bahamas).—ALLEN, Bull. Mus. Comp. Zool., ii, 1871, 261 (e. Florida in winter); iii, 1872, 124 (Topeka, Kansas); Am. Nat., vi, 1872, 269 (Topeka); Bull. Am. Mus. N. H., i, 1886, 261 (Massachusetts records).—TRIPPE, Proc. Bost. Soc. N. H., xv, 1872, 236 (Decatur and Mahaska counties, s. Iowa, breeding).—COOK, Check List, 1873, no. 23, part; Birds Col. Val., 1878, 101, part.—SNOW, Birds Kansas, 1873, 6 (e. Kansas).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds i, 1874, 78, part, pl. 6, fig. 5.—BREWSTER, Ann. Lyc. N. Y., xi, 1875, 132 (Ritchie Co., West Virginia; habits; song); Bull. Nutt. Orn. Club, iii, 1878, 19 (descr. young).—DEANE, Bull. Nutt. Orn. Club, iii, 1878, 45 (Cape Cod, Massachusetts, 1 spec., Nov. 18, 1877); v, 1880, 47 (Magnolia, Massachusetts, 1 spec., Aug. 27, 1879).—PURDIE, Bull. Nutt. Orn. Club, ii, 1877, 20 (Wanregan, Connecticut, 2 specs.; Providence, Rhode Island, 1 spec., May 23; near Providence, 1 spec., June 24).—BREWER, Bull. Nutt. Orn. Club, iii, 1878, 146 (Falmouth, Massachusetts, 1 spec., Dec. !); Proc. Bost. Soc. N. H., xix, 1878, 301 (New England records).—SENNETT, Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 6 (Brownsville, Texas, breeding).—MERRILL (J. C.), Proc. U. S. Nat. Mus., i, 1878, 120 (Fort Brown, Texas, breeding).—

^a Perhaps *P. c. mexicana*.

- WILLIAMS, Bull. Nutt. Orn. Club, iv, 1879, 182 (Minneapolis, Minnesota, 1 spec.).—BROWN (N. C.), Bull. Nutt. Orn. Club, v, 1880, 236 (Cape Elizabeth, Maine; 1 spec. summer 1878 and 1 Aug. 29, 1880); Proc. Portl. Soc. N. H., 1882, 5 (same); Auk, xiii, 1896, 264 (near Portland, Maine; 1 spec., Apr. 18, 1896).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 50, part.—CORY, Birds Bahama Is., 1880, 52, part; Auk, iii, 1886, 23, part, 501 (Grand Cayman); Birds W. I., 1889, 37, part; Cat. W. I. Birds, 1892, 120, part.^a—RIDGWAY, Nom. N. Am. Birds, 1881, no. 27, part; Orn. Illinois, i, 1889, 73.—BERIER, Auk, vi, 1881, 126 (Fort Hamilton, Long Island, 1 spec., Oct. 11, 1879).—COVERT, Annot. List. Birds Washtenaw Co., Mich., 1881, 174 (common summer resid.).—NEHRLING, Bull. Nutt. Orn. Club, vii, 1882, 7 (Houston, Texas, breeding); Our Native Birds, etc., i, 1893, 92, pl. 6.—SAGE, Bull. Nutt. Orn. Club, viii, 1883, 179 (Portland, Connecticut, 1 spec., May 11, 1883); Auk, iii, 1886, 487 (East Hartford, Connecticut, 1 spec., May 7, 1886).—SHARPE, Cat. Birds Brit. Mus., x, 1885, 442, part.—LAWRENCE (N. T.), Auk, ii, 1885, 272 (Far Rockaway, Long Island, 1 spec., Apr. 18, 1874).—SETON, Auk, ii, 1885, 334 (Toronto, Ontario, 1 spec., May 9, 1885).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 751, part.—DWIGHT, Auk, v, 1888, 324 (Montauk Point, Long Island, 1 spec., Sept. 2, 1885).—COOKE, Bird Migr. Miss. Val., 1888, 281 (Mississippi Valley range, and dates of migr.).—EVERMANN, Auk, vi, 1889, 29 (Carroll Co., Indiana, summer resid.).—CHAPMAN, Auk, vi, 1889, 305 (near Piermont, New York, 1 spec.); Bull. Am. Mus. N. H., iv, 1892, 312 (near Trinidad, Cuba).—SCOTT (W. F. D.), Auk, vii, 1890, 119 (Tarpon Springs, Florida, breeding); ix, 1892, 214 (Caloosahatchie R., Florida, breeding).—MILLER, Auk, vii, 1890, 229 (Cape Cod, Massachusetts, 1 spec., Oct. 9, 1899).—ATTWATER, Auk, ix, 1892, 344 (San Antonio, Texas, breeding).—WHITE, Auk, x, 1893, 229 (Mackinac I., Michigan, 2 specs., Sept. 22, 1889).—DUTCHER, Auk, x, 1893, 277 (Canarsie, Long Island, 1 spec., 1849).—STONE, Auk, xi, 1894, 140 (Bridgeton, New Jersey, breeding; Atlantic City and Denisville, New Jersey, rare in spring).—McILWRAITH, Birds Ontario, 1894, 404 (s. Ontario, summer resid.).—ULREY and WALLACE, Proc. Ind. Ac. Sci., 1895, 159 (Wabash, Indiana, common summer resid.).—WAYNE, Auk, xii, 1895, 366 (Wacissa R., Florida, breeding).—HADLEY, Proc. Ind. Ac. Sci., 1897, 197 (Wayne Co., Indiana, rare summer resid.).—BEYER, Proc. Louis. Soc. Nat. for 1897-1899 (1900), 43 (Louisiana, summer resid.).—ISHAM, Auk, xix, 1902, 91 (Central Park, New York City, May 22, 1901).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 465.—ALLEN (F. H.), Auk, xx, 1903, 69 (West Manchester, Massachusetts, 1 spec., Nov. 16, 1902).
- Poliophtila caerulea* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 380, part; Rep. U. S. and Mex. Bound. Surv., ii, pt. 2, 1859, 13, part (Tamaulipas); Cat. N. Am. Birds, 1859, no. 282, part.—GUNDLACH, Journ. für Orn., 1861, 324 (Cuba); 1872, 409 (Cuba).
- Poliophtila caerulea* COUES, Birds N. W., 1874, 17, part; Check List, 2d ed., 1882, no. 36, part.
- [*Poliophtila*] *caerulea* GRAY, Hand-list, i, 1869, 237, no. 3433.—COUES, Key. N. Am. Birds, 1872, 78, part.—CORY, List Birds W. I., 1885, 6, part.
- [*Poliophtila*] *caerulea* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 4, part.
- [*Poliophtila*] *caerulea* COUES, Key N. Am. Birds, 2d ed., 1884, 261, part.
- [*Poliophtila*] *caerulea* NELSON, Bull. Essex Inst., viii, 1876, 95, 152 (n. e. Illinois, common migr., a few breeding).—RIDGWAY, Man. N. Am. Birds, 1887, 569, part.

^a Without having seen specimens from all the islands enumerated, I can not, of course, designate these.

P[olioptila] caerulea caerulea HELLMAYR, Novit. Zool., vii, Dec., 1900, 535; Tierreich, 18 Lief., 1903, 20.

[*Motacilla*] *cana* GMELIN, Syst. Nat., i, pt. 2, 1788, 973 (Louisiana; based on *Fagaria cendré à gorge cendrée* Buffon, Hist. Nat. Ois., v, 319; *Grey-throated Warbler* Pennant, Arctic Zool., ii, 411).

[*Sylvia*] *cana* LATHAM, Index Orn., ii, 1790, 543.

POLIOPTILA CAERULEA OBSCURA Ridgway.

WESTERN GNATCATCHER.

Similar to *P. c. caerulea*, but gray of upper parts slightly duller and black at base of inner web of outermost rectrix more extended, usually showing beyond tip of under tail-coverts.

Adult male.—Length (skins), 103–115 (107.9); wing, 48–51.5 (49.9); tail, 49.5–55.5 (51.7); exposed culmen, 9.5–11 (10.2); tarsus, 16–18 (17.3); middle toe, 8.5–9 (8.6).^a

Adult female.—Length (skins), 97–112 (105.3); wing, 47–51.5 (48.5); tail, 47–54 (50.4); exposed culmen, 9–10.5 (9.1); tarsus, 16.5–18.5 (17.5); middle toe, 8–9 (8.6).^b

Southwestern United States and contiguous parts of northern Mexico, from western Texas (west of Pecos River) to California; northward to Colorado (regularly to El Paso County, accidentally to Denver), southern Utah (Beaverdam; Santa Clara Valley), southern Nevada (Mount Magruder), and interior of northern California (Napa, Tehama, Shasta, Siskiyou, and Placer counties); southward to Cape St. Lucas (in winter only?) and through Mexican States of Chihuahua, Sonora, and Sinaloa (near Mazatlan; Culiacan) to Colima (Plains of Colima, January).

Muscicapa caerulea (not *Motacilla caerulea* Linnæus) GAMBEL, Journ. Ac. Nat. Sci. Phila., i, 1847, 38 (California).

Culicivora caerulea GAMBEL, Proc. Ac. Nat. Sci., Phila., 1847, 156 (California).

^a Seventeen specimens.

^b Eleven specimens.

Specimens from different geographic areas average, respectively, as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Eight adult males from western Texas to southern Utah, Arizona, etc	50.2	52.3	9.9	17.5	8.6
Three adult males from Cape district, Lower California.....	49.2	50.7	10.5	17.5	8.5
Two adult males from southern California (San Diego County)	50	50.7	10.5	16.2	8.5
Three adult males from northern California	49.6	51.5	10.4	17.5	8.5
FEMALES.					
Six adult females from New Mexico and Arizona.....	48.9	51.5	9.8	17.5	8.6
One adult female from Cape district, Lower California.....	50	52	10	17	8.5
Three adult females from southern California and northern Lower California	47.3	48	10	17.3	8.5

- Culicivora caerulea* HENRY, Proc. Ac. Nat. Sci., Phila., vii, 1855 309 (New Mexico).
- Poliophtila caerulea* XANTUS, Proc. Ac. Nat. Sci., Phila., xi, 1859, 191 (Fort Tejon, California).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 380, part (Fort Thorn, New Mexico; Colorado R. and Fort Tejon, California; Organ Mts., w. Texas); Review Am. Birds, 1864, 74, part (Yreka, Marysville, San Diego, etc., California; Cape St. Lucas, Lower California, etc.); Cat. N. Am. Birds, 1859, no. 282, part; Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 13, part (Organ Mts., Texas).—HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, no. 2, 1859, 39 (California).—COUES, Ibis, 1865, 538 (Arizona); Proc. Ac. Nat. Sci., Phila., 1866, 66 (Fort Whipple, Arizona); Check List, 1873, no. 23, part; 2d ed. 1882, no. 36, part; Birds N.W., 1874, 17, part; Birds Col. Val., 1878, 101, part.—BUTCHER, Proc. Ac. Nat. Sci., Phila., xx, 1868, 149 (Laredo, Texas).—COOPER, Orn. Cal., 1870, 35.—RIDGWAY, Bull. Essex. Inst., v, 1873, 179 (Colorado); 1874, 172 (Sacramento Valley); Orn. 40th Parallel, 1877, 409 (w. foothills, Sierra Nevada); Nom. N. Am. Birds, 1881, no. 27, part.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 78, part; iii, 1874, 501 (Placer Co., San Buenaventura, and near San Francisco, California; El Paso Co., Colorado).—HENSHAW, Rep. Orn. Spec. Wheelers's Surv., 1874, 99 (Arizona); 1876, 228 (Fort Tejon, California); Zool. Expl. W. 100th Merid., 1875, 166 (s. of Camp Apache, San Pedro, and Camp Bowie, Arizona; Aguazul, New Mexico).—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 267 (Mazatlan; Tonila, Jalisco).—BELDING, Proc. U. S. Nat. Mus., i, 1879, 399 (Calaveras Co., Stockton, etc., California); v, 1883, 534 (Cape St. Lucas), 543 (Guaymas, Sonora).—BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 77 (Chiricahua Mts., Tombstone, Cienega Station, Tucson, and Santa Rita Mts., Arizona).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 751, part.—STEPHENS, Bull. Ridgway Orn. Club, no. 2, 1887, 56 (San Bernardino Valley, California).—TOWNSEND (C. H.), Proc. U. S. Nat. Mus., x, 1887, 230 (Baird and Red Bluff, n. California).—(?) LLOYD, Auk, iv, 1887, 298 (Tom Green and Concho counties, w. Texas, summer resid.).—SCOTT, Auk, v, 1888, 166 (s. Arizona, resid.).—(?) COOKE, Bull. 37, Col. Agric. Coll., 1897, 124 (north to El Paso Co., Colorado, breeding from plains to 7,000 ft.); Bull. 44, 1898, 169 (Denver, Colorado, 1 spec.).
- P[oliophtila] caerulea* RIDGWAY, Man. N. Am. Birds, 1887, 569, part.
- Poliophtila caerulea* HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 99 (San Pedro and s. of Apache, Arizona), 155 (Arizona).—BELDING, Proc. U. S. Nat. Mus., vi, 1883, 346 (Laguna Mts., Lower California).
- P[oliophtila] caerulea* COUES, Key N. Am. Birds, 2d ed., 1884, 261, part.
- P[oliophtila] caerulea obscura* RIDGWAY, Proc. U. S. Nat. Mus., v, sig. 34, Mar. 21, 1883, 535, footnote (San José del Cabo, Lower California, Apr. 17; coll. U. S. Nat. Mus.).—HELLMAYR, Novit. Zool., vii, 1900, 535 (crit.); Tierreich, 18 Lief., 1903, 20.
- Poliophtila caerulea obscura* AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, vii, 1890, 64; Check List, 2d ed., 1895, no. 751a.—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 612.—FISHER (A. K.), North Am. Fauna, no. 7, 1893, 143 (localities in s. California; Mount Magruder, s. Nevada; Santa Clara Valley and Beavertown Mts., s. Utah; descr. nest).—ALLEN, Bull. Am. Mus. N. H., v, 1893, 42 (n. e. Sonora and n. w. Chihuahua, Sept., Nov.).—JOUY, Proc. U. S. Nat. Mus., xvi, 1894, 775 (Guaymas, Sonora, Feb.).—MERRIAM (F. A.), Auk, xiii, 1896, 123 (Twin Oaks, San Diego Co., California; habits).—GRINNELL (J.), Pub. 2, Pasadena Ac. Sci., 1898, 50 (Los Angeles Co., California, resident); Check List Calif. Birds, 1902, 72 (California range).—BARLOW, Condor, ii, 1900, 133 (near Mount Hamilton, Santa Clara Co., California, Apr.).—FISHER (W. K.), Condor, ii, 1900, 138 (Mount St. Helena, 10384—VOL 3—03—46

Napa Co., California).—CHAMBERLIN, Condor, iii, 1901, 33-36, figs. 1-3 (Vallecito, California; nesting habits; descr. nest and eggs, illustrated).—MAILLIARD, Condor, iii, 1901, 127 (Paicines, San Benito Co., California, resid.).—OBERHOLSER, Auk, xix, 1902, 301 (w. of Pecos R., w. Texas).—BREWSTER, Bull. Mus. Comp. Zool., xli, 1902, 209 (Cape district, Lower California, resid. from coast to top of highest mountains; crit.; descr. nest and eggs).

P[olioptila] c[ærulea] obscura BAILEY (Florence M.), Handb. Birds, W. U. S., 1902, 466.

POLIOPTILA CÆRULEA MEXICANA (Bonaparte).

MEXICAN GNATCATCHER.

Similar in coloration to *P. c. cærulea* but decidedly smaller.

Adult male.—Length (skins), 100-107 (103.3); wing, 45-50 (47.5); tail, 45-48 (46.3); exposed culmen, 9.5-11 (10.3); tarsus, 15-17 (16.3); middle toe, 8-9.5 (8.6).^a

Adult female.—Length (skins), 101-103 (102); wing, 42.5-48 (45.3); tail, 41-45.5 (43.5); exposed culmen, 9.5-10.5 (10); tarsus, 16-17 (16.5); middle toe, 8-9 (8.5).^b

Southeastern Mexico, in States of San Luis Potosi (Valles), Vera Cruz (Minatitlan; Tlalcotalpan), Oaxaca (near Tehuantepec; Santa Efigenia; Oaxaca), Chiapas (Huehuetan; Palenque), Tabasco (Montecristo), Campeche (Campeche), and Yucatan; Guatemala (in winter only?).

(?) *C[ulicivora] coerulea* CABANIS, Mus. Hein., i, 1850, 34, part (Jalapa, Vera Cruz).

(?) *Polioptila cærulea* SCLATER, Proc. Zool. Soc. Lond., 1859, 363 (Jalapa, Vera Cruz).

Polioptila cærulea BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 380, part.

Polioptila cærulea BAIRD, Review Am. Birds, 1864, 74, part.—LAWRENCE, Ann. Lyc. N. Y., ix, 1870, 199 (n. Yucatan); Bull. U. S. Nat. Mus., no. 4, 1876, 12 (Santa Efigenia, Juchitan, Tehuantepec, and Oaxaca).—BAIRD, BREWSTER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 78, part.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 50 part.—SALVIN, Cat. Strickland Coll., 1882, 61 (Mexico; Guatemala).—SHAEPPE, Cat. Birds Brit. Mus., x, 1885, 442, part.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 751, part.—CHAPMAN, Bull. Am. Mus. N. H., viii, 1896, 276 (Chichen-Itza, Yucatan).

P[olioptila] cærulea RIDGWAY, Man. N. Am. Birds, 1887, 569.

[Polioptila] cærulea SCLATER and SALVIN, Nom. Av. Neotr., 1873, 4, part.

Culicivora mexicana BONAPARTE, Consp. Av., i, 1850, 316.

[Culicivora] mexicana HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1882, 24.

Polioptila mexicana SCLATER, Proc. Zool. Soc. Lond., 1859, 363 (Jalapa, Vera Cruz), 373 (Oaxaca); (?) Cat. Am. Birds, 1862, 12 (Orizaba, Vera Cruz).—

(?) SCLATER and SALVIN, Ibis, 1859, 9 (Dueñas and Volcan de Fuego, 14,000 ft., Guatemala).—SALVIN, Ibis, 1866, 202.

[Polioptila] mexicana GRAY, Hand-list, i, 1869, 237, no. 3439.

Polioptila cærulea mexicana NELSON, Auk, xv, Apr., 1898, 160 (lowlands of Vera Cruz, s. to e. Chiapas; crit.; descr.).

P[olioptila] cærulea mexicana HELLMAYER, Novit. Zool., vii, 1900, 535 (s. Mexico: Yucatan?); Tierreich, 18 Lief., 1903, 21.

(?) *Polioptila* — SCLATER, Proc. Zool. Soc. Lond., 1856, 298 (Cordova, Vera Cruz).

^a Twelve specimens.

^b Five specimens.

POLIOPTILA CÆRULEA CÆSIOGASTRA Ridgway.

BAHAMA GNATOATONER.

Similar to *P. c. cærulea* but darker, especially the under parts, which are mostly pale bluish gray, only the abdomen and under tail-coverts being white.

Adult male.—Length (skins), 105–115 (111.7); wing, 47–52.5 (49.5); tail, 50–54 (51.9); exposed culmen, 9.5–11.5 (10.5); tarsus, 17–18 (17.7); middle toe, 8.5–9 (8.8).^a

Adult female.—Length (skins), 105–112 (108.3); wing, 44.5–48.5 (47); tail, 49–52 (50.6); exposed culmen, 10–11 (10.4); tarsus, 17–18.5 (17.5); middle toe, 8.5–9.5 (9).^b

Resident in Bahamas (islands of Abaco, Andros, New Providence, Little Abaco, and Inagua) and on island of Cozumel and adjacent coast of Yucatan (Merida).

Polioptila cærulea (not *Motacilla cærulea* Linnæus) CORY, Birds Bahama I., 1880, 52, part; Auk, iii, 1886, 23, part; Birds W. I., 1889, 37, part.—SHARPE, Cat. Birds Brit. Mus., x, 1885, 442, part.—RIDGWAY, Proc. U. S. Nat. Mus., viii, 1885, 561 (Cozumel); Auk, viii, 1891, 334 (Abaco I., Bahamas).—CORY, Auk, viii, 1891, 350 (Abaco), 351 (Inagua).

[*Polioptila*] *cærulea* CORY, List Birds W. I., 1885, 6, part.

P[olioptila] cærulea cæsiogaster RIDGWAY, Man. N. Am. Birds, 1887, 569 (New Providence I., Bahamas; coll. U. S. Nat. Mus.).—HELLMAYR, Novit. Zool., vii, 1900, 535 (crit.); Tierreich, 18 Lief., 1903, 21.

Polioptila cærulea cæsiogaster RIDGWAY, Man. N. Am. Birds, 1887, 592; 2d ed., 1896, 614; Auk, viii, 1891, 335 (New Providence I., Bahamas).—NORTHROP, Auk, viii, 1891, 67 (Andros I., Bahamas).—CORY, Auk, v, 1888, 157; Cat. W. I. Birds, 1892, 120, 127, 156 (Bahamas).—BANGS, Auk, xvii, 1900, 289 (New Providence).—BONHOTE, Ibis, 1903, 277 (Little Abaco I.).

Polioptila cæsiogaster? SALVIN, Ibis, 1888, 245 (Cozumel I.; crit.).

^a Twelve specimens from Bahamas.

^b Seven specimens from Bahamas.

Specimens from different islands average, respectively, as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Eight adult males from Abaco.....	50.2	52.7	10.8	17.6	8.8
Four adult males from New Providence.....	48	50.4	9.9	17.7	8.7
Seven adult males from Cozumel and Yucatan.....	47.6	48.9	10.4	17.5	8.7
FEMALES.					
Four adult females from Abaco.....	47.5	50.7	10.5	17.6	9.1
Three adult females from New Providence.....	46.3	50.5	10.2	17.3	8.7
One adult female from Inagua.....	46	46	11	18	9
One adult female from Cozumel.....	47.5	49	11	17.5	9

Cozumel specimens are slightly darker above, especially on the pileum, and may prove to be separable from the Bahama birds.

POLIOPTILA NELSONI Ridgway.

NELSON'S GNATCATCHER.

Similar to *P. cerulea caesiogastra*, but much larger and very much darker in coloration.

Adult male in summer.—Pileum dark bluish slate color, becoming blue-black and distinctly glossed on forehead, but showing in certain lights a more positively black U-shaped mark bounding frontal region as in the forms of *P. cerulea*; hindneck, back, scapulars, lesser wing-coverts, and rump, uniform bluish slate color; wings (except lesser coverts) brownish slate color, with slate-colored or slate-gray edgings;^a upper tail-coverts and tail black, the outermost rectrix with outer web white, except basally, the inner web with about terminal half white, the second rectrix with considerably less of white, the third white for about 10 mm. from tip; a narrow white orbital ring, the sides of the head otherwise, including lores, bluish slate color or bluish slate-gray; under parts pale bluish gray (nearly cinereous) becoming white on abdomen and anal region; bill black, the mandible indistinctly paler (more grayish) basally; legs and feet brownish black (in dried skin); length (skin), 107; wing, 49; tail (decidely worn at tip), 50; exposed culmen, 11; tarsus, 16; middle toe, 8.5.

Adult female in winter.—Pileum and hindneck plain slate color; back, scapulars, wing-coverts, and rump slightly paler (between slate color and slate-gray); remiges dark brownish slate with pale-gray edgings, the tertials broadly edged with dull whitish; upper tail-coverts and tail black, the outermost rectrix mostly white (inner web with basal third, or more, black), next with about terminal half of inner web, considerably more of outer web, white, third with outer web broadly tipped and edged for most of its length with white, the fourth with a small white tip; sides of head paler gray than upper parts, relieved by a conspicuous white orbital ring; under parts white medially, pale bluish gray laterally, the chest faintly shaded with pale bluish gray; maxilla black; mandible blackish terminally, the basal half, or more, pale grayish; legs and feet grayish black (in dried skins); length (skin), 108; wing, 47.5; tail, 52; exposed culmen, 10; tarsus, 17; middle toe, 9.^b

States of Oaxaca (Oaxaca City) and Chiapas (Comitlan), southeastern Mexico.

Polioptila nelsoni RIDGWAY, Proc. Biol. Soc. Wash., xvi, Sept. 30, 1903, 109 (Oaxaca City, Oaxaca; coll. U. S. Nat. Mus.),

^a Tertials are much worn, so that any white or pale-colored edgings which may have existed in fresh plumage have quite disappeared.

^b Description and measurements from no. 142692, coll. U. S. Nat. Mus. (Biological Survey collection), Comitlan, Chiapas, Dec. 10, 1895; Nelson and Goldman. This specimen I am unable to refer to any other form, and therefore place it here, though with some doubt. It was identified as *P. cerulea mexicana* by Mr. Nelson, but is much too large for that form and besides is too dark in coloration of the upper parts.

POLIOPTILA ALBILORIS Sclater and Salvin.

WHITE-LORED GNATOATOKER.

Adult male.—Pileum, together with upper half (more or less) of auricular region, uniform glossy blue-black; whole loreal region, eyelids, a small spot or short streak above posterior angle of eye, sub-orbital and malar regions and lower portion of auricular region, together with under parts, white, passing into pale bluish gray on sides and flanks, the chest faintly shaded with the same; hindneck, back, scapulars, rump, and wing-coverts, uniform bluish gray (between plumbeous and slate-gray); remiges dull or brownish slate color edged with pale gray, the tertials very broadly and conspicuously edged with white; upper tail-coverts and tail black, the outermost rectrix with outer web white, except extreme base, the inner web with about terminal two-thirds white, the next with nearly as much white on outer web but only about terminal half of inner web white, the third with tip white for about 10 to 15 mm., the fourth often with a distinct white tip; maxilla black, the mandible grayish with dusky tip; iris brown; legs and feet dusky in dried skins, plumbeous in life;^a length (skins), 105–115 (110.2); wing, 48–51 (49); tail, 49–56 (52.6); exposed culmen, 11.5–12 (11.6); tarsus, 17.5–18 (17.7); middle toe, 9–9.5 (9.4).^b

Adult female.—Similar to the adult male, but back of head replaced by slate color, and gray of back, etc., duller (slate-gray); length (skins), 102–106 (103.7); wing, 44–47 (45.6); tail, 47.5–49 (48); exposed culmen, 11–12 (11.2); tarsus, 17–18 (17.2); middle toe, 9.^c

Guatemala (Chuacus) to Oaxaca (Santa Efigenia; Tehuantepec; Cuititlan; Huilotepec; Tapana).

Polioptila albiloris SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1860, 298 (Notagua Valley, Guatemala; coll. Salvin and Godman); Ibis, 1860, 397 (do.); Nom. Av. Neotr., 1873, 4.—OWEN, Ibis, 1861, 61, pl. 2, fig. 3, egg (Choacus, Guatemala; descr. nest and eggs).—BAIRD, Review Am. Birds, 1864, 70, part (in synonymy).—LAWRENCE, Bull. U. S. Nat. Mus., no. 4, 1876, 12 (Santa Efigenia and Tehuantepec, Oaxaca).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1879, 53, part, pl. 5, figs. 1, 2 (Chuacus, Guatemala; Santa Efigenia and Tehuantepec, Oaxaca).—SHARPE, Cat. Birds Brit. Mus., x, 1885, 454 (Tehuantepec, Mexico; Chuacus, Guatemala; La Union, Salvador).

[*Polioptila*] *albiloris* GRAY, Hand-list, i, 1869, 237, no. 3440.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 4.

[*oliptila*] *albiloris* RIDGWAY, Proc. U. S. Nat. Mus., v, 1882, 387, 388, 389, part (Santa Efigenia and Tehuantepec, Oaxaca; Guatemala); Man. N. Am. Birds, 1887, 569, part (Tehuantepec; Guatemala; Salvador?).—HELLMAYR, Novit. Zool., vii, 1900, 536, in text, part (crit.); Tierreich, 18 Lief., 1903, 28.

^a According to Sumichrast.

^c Four specimens.

^b Four specimens, from Oaxaca.

POLIOPTILA BAIRDI Ridgway.

NICARAGUAN GNATCATCHER.

Similar to *P. albiloris*, but wing and tail shorter, especially the latter; adult male with loreal region partly black, usually as a spot at anterior angle of eye or a streak from anterior angle of eye to, or nearly to, base of maxilla.

Adult male.—Length (skins), 105–108 (106); wing, 46–50 (47.5); tail, 45–49 (46.8); exposed culmen, 11.5–12.5 (11.9); tarsus, 17–18 (17.5); middle toe, 9–9.5 (9.2).^a

Adult female.—Length (skins), 106; wing, 43.5–46.5 (45); tail, 42.5–44 (43.5); exposed culmen, 12; tarsus, 17–17.5 (17.3); middle toe, 9–9.5 (9.3).^b

Western Nicaragua (Realejo; San Juan del Sur; Sucuyá; Grenada) and Costa Rica (Liberia; Volcan de Miravalles; Cartago?)

Polioptila albiloris (not of Sclater and Salvin) BAIRD, Review Am. Birds, 1864, 70, part (description; Grenada and Realejo, Nicaragua).—SALVIN and GOMMAN, Biol. Centr.-Am., Aves, i, 1879, 53, part (Grenada and Realejo, Nicaragua).—NUTTING, Proc. U. S. Nat. Mus., vi, 1883, 373 (San Juan del Sur, Nicaragua).—ZELEDON, Anal. Mus. Nac. Costa Rica, i, 1887, 105 (Liberia and Cartago, Costa Rica).

P[olioptila] albiloris RIDGWAY, Proc. U. S. Nat. Mus., v, 1882, 387, 388, 389, part (Realejo, Nicaragua); Man. N. Am. Birds, 1887, 569, part (Nicaragua).—(?) HELLMAYR, Novit. Zool., vii, 1900, 536, in text, part (crit.); Tierreich, 18 Lief., 1903, 28, part (Nicaragua; Miravalles, Costa Rica).

Polioptila bilineata (not *Culicivora bilineata* Bonaparte) NUTTING, Proc. U. S. Nat. Mus., vi, 1883, 380, part (Sucuyá, Nicaragua).

P[olioptila] leucogastra (not *Sylvia leucogastra* Maximilian) RIDGWAY, Proc. U. S. Nat. Mus., v, 1882, 387, in text, 388, part (Grenada, Nicaragua).

P[olioptila] albiloris RIDGWAY, Proc. U. S. Nat. Mus., v, 1882, 388, in text, part (Realejo, Nicaragua).

Polioptila bairdi RIDGWAY, Proc. Biol. Soc. Wash., xvi, Sept. 30, 1903, 110 (San Juan del Sur, Nicaragua; coll. U. S. Nat. Mus.).

POLIOPTILA BILINEATA (Bonaparte).

BONAPARTE'S GNATCATCHER.

Similar to *P. bairdi*, but with loreal region entirely white, confluent with a broad superciliary streak (as in *P. superciliaris*); wing averaging longer, tail decidedly shorter, and feet smaller.^c Similar in head-pattern to *P. superciliaris*, but bird decidedly larger and coloration much paler, the gray of back, etc., and white of under parts being as in *P. albiloris* and *P. bairdi*.

Adult male.—Length (skins), 100; wing, 48–50 (49); tail, 42–44 (43); exposed culmen, 11.5–12 (11.8); tarsus, 15–16.5 (15.8); middle toe, 8–9 (8.3).^b

^a Six specimens.

^b Three specimens.

^c These differences of proportions are very obvious in adult males (especially as to the both relatively and absolutely shorter tail), less so in females.

Adult female.—Length (skins), 95–104 (98.3); wing, 45.5–47 (46.3); tail, 42–43.5 (42.8); exposed culmen, 11–12.5 (11.7); tarsus, 16.5–18 (17); middle toe, 9–9.5 (9.2).^a

Veragua (Chitra) to Caribbean coast of Province of Santa Marta, Colombia (Bonda; Santa Marta).

- (?) [*Culicivora*] *bilineata* BONAPARTE, Consp. Av., i, 1850, 316 (Cartagena, Colombia; coll. Berlin Mus.; ex Cabanis, manuscript).^b
- (?) *Polioptila bilineata* SCLATER, Proc. Zool. Soc. Lond., 1855, 12 (Cartagena).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1879, 52, part.^b—SHARPE, Cat. Birds Brit. Mus., x, 1885, 452, part.^c
- (?) *P[olioptila] bilineata* HELLMAYR, Tierreich, 18 Lief., 1903, 27, part (n. coast Colombia).
- Polioptila bilineata* BAIRD, Review Am. Birds, 1864, 72.—BANGS, Proc. Biol. Soc. Wash., xii, 1898, 144 (Santa Marta, Colombia).—ALLEN, Bull. Am. Mus. N. H., xiii, 1900, 181 (Bonda, Santa Marta).
- (?) [*Polioptila*] *bilineata* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 4, part.

The following citations pertain to South American localities, and may or may not represent the true *P. bilineata*:

- Polioptila bilineata* SCLATER, Proc. Zool. Soc. Lond., 1860, 273 (Babahoyo, w. Ecuador).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1879, 52, part (Colombia; Ecuador).—SHARPE, Cat. Birds Brit. Mus., x, 1885, 452, part (Babahoyo, Esmeraldas, Guayaquil, and Puna I., w. Ecuador; Pacasmayo, Peru).—TACZANOWSKI and BERLEFSCH, Proc. Zool. Soc. Lond., 1885, 71 (Yaguachi, Ecuador).—SALVADORI and FESTA, Boll. Mus. Zool., etc., Torino, xv, no. 357, 1899, 3 (Babahoyo, Savana de Guayaquil, Vines, and Puntilla de Santa Elena, w. Ecuador).—GOODFELLOW, Ibis, 1901, 312 (Santo Domingo, w. Ecuador, 1,000 ft.).
- P[olioptila] bilineata* HELLMAYR, Tierreich, 18 Lief., 1903, 27, part (w. Ecuador; n. Peru).
- [*Culicivora*] *bilineata* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1882, 24 (Esmeraldas, w. Ecuador).
- Polioptila albilora* (not *P. albiloris* Sclater and Salvin) TACZANOWSKI, Proc. Zool. Soc. Lond., 1877, 319 (Tumbez, Peru).
- Polioptila albiloris* TACZANOWSKI, Proc. Zool. Soc. Lond., 1879, 223 (Pacasmayo, n. Peru); Orn. de Pérou, i, 1884, 452 (Guadalupe, Tumbez, Lechugal, and Pacasmayo, Peru).

POLIOPTILA SUPERCILIARIS SUPERCILIARIS Lawrence.

LAWRENCE'S GNATCATCHER.

Similar to *P. bilineata* but decidedly smaller, with tail relatively shorter, feet weaker, and coloration much darker; gray of back, etc., dark bluish slate-gray, almost slate color; white of under parts strongly shaded laterally and across chest with pale bluish gray.

^a Three specimens.

^b Whether Bonaparte's type really represents this form or *P. superciliaris* can only be determined by examination of the type. My assumption that it probably belongs here is based on the locality.

^c Without examination of specimens it is of course impossible to say which of the localities designated, if any, relate to the present form.

Adult male.—Length (skins), 95–101 (99); wing, 45–47.5 (46.6); tail, 38–41 (39.7); exposed culmen, 11–12 (11.5); tarsus, 15.5–16.5 (16.1); middle toe, 8.5–9.5 (8.8).^a

Adult female.—Length (skins), 90–100 (92.9); wing, 41.5–44 (43.1); tail, 36.5–49.5 (38.8); exposed culmen, 11.5–12 (11.8); tarsus, 15–17 (16.2); middle toe, 8.5–9 (8.8).^b

Isthmus of Panama (line of Panama Railroad) to Guatemala (Chisec).

Polioptila superciliaris LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., vii, June, 1861, 304, 322 (Lion Hill, Panama R. R.; coll. G. N. Lawrence); viii, 1865, 179 (Greytown, Nicaragua); ix, 1868, 92 (Angostura, Atiro, and Guaitil, Costa Rica).—BAIRD, Review Am. Birds, 1864, 71 (Isthmus of Panama).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 344 (Panama; crit.).—SALVIN, Ibis, 1866, 190 (Chisec, Guatemala); (?) Proc. Zool. Soc. Lond., 1870, 182 (Veragua).

[*Polioptila*] *superciliaris* GRAY, Hand-list, i, 1869, 237, no. 3436.

Polioptila bilineata (not *Culicivora bilineata* Bonaparte?) BOUCARD, Ois. Guat., 1873, 29 (Guatemala); (?) Proc. Zool. Soc. Lond., 1883, 439 (Progreso, Yucatan).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1879, 52, part (Chisec, Guatemala; La Union, Salvador; Punta Arenas, Turrialba, Angostura, Atirro, and Guaitil, Costa Rica; Lion Hill, Panama R. R.).—NUTTING, Proc. U. S. Nat. Mus., v, 1882, 387 (La Palma de Nicoya, Costa Rica); vi, 1883, 380, part (Sucuyá, Nicaragua).—ZELEDON, Cat. Aves de Costa Rica, 1882, 2; Proc. U. S. Nat. Mus., viii, 1885, 105; Anal. Mus. Nac. Costa Rica, i, 1887, 105 (Angostura, Costa Rica).—RIDGWAY, Proc. U. S. Nat. Mus., v, 1882, 387 (crit.); x, 1888, 585 (Segovia R., Honduras).—SHARPE, Cat. Birds Brit. Mus., x, 1885, 452, part (Chisec, Guatemala; Turrialba and Punta Arenas, Costa Rica; Bugaba, Chiriqui; Panama, Lion Hill, and Chepo, Isthmus Panama).—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 482 (Rio Escondido and Greytown, Nicaragua).—CHERRIE, Expl. Zool., Merid. Costa Rica, 1893, 3 (Boruca, Térraba, and Buenos Aires, s. w. Costa Rica).

[*Polioptila*] *bilineata* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 4.

P[*olioptila*] *bilineata* RIDGWAY, Proc. U. S. Nat. Mus., v, 1882, 387, 388, 389 (Panama; Veragua; Costa Rica; Nicaragua; Guatemala; "Venezuela"); c Man. N. Am. Birds, 1887, 570.—HELLMAYR, Novit. Zool., vii, 1900, 536, in text; viii, 1901, 360 (crit.); Tierreich, 18 Lief., 1903, 27, part.

POLIOPTILA SUPERCILIARIS MAGNA Ridgway.

CARTAGO GNATCATCHER.

Similar to *P. s. superciliosa*, but decidedly larger (except length of tarsus); the wing much longer; coloration darker; the pileum in adult female nearly slate-black, the under parts pale gray (between french gray and pale cinereous), only the abdomen, hinder flanks, anal region, and under tail-coverts being white.

^aSeven specimens.

^bTen specimens.

^cThe supposed Venezuelan specimen is probably from the Isthmus of Panama.

Adult female.—Length (skin), 106; wing, 47.5; tail, 43; exposed culmen, 12.5; tarsus, 16.5; middle toe, 9.5.

Highlands of Costa Rica (Cartago).

Poliophtila superciliaris magna RIDGWAY, Proc. Biol. Soc. Wash., xvi, Sept. 30, 1903, 110 (Cartago, Costa Rica; coll. U. S. Nat. Mus.).

POLIOPTILA ALBIVENTRIS Lawrence.

YUCATAN GNATCATCHER.

Similar to *P. nigriceps*, but smaller; gray of upper parts slightly paler; under parts more purely white, with gray tinge to chest and sides much less distinct (the former sometimes quite wanting), and with much more white on lateral rectrices; adult female with a narrow superciliary stripe of white.^a

Adult male.—Length (skins), 100–111 (105.2); wing, 43–46 (45.3); tail, 45–50 (48.2); exposed culmen, 11–12 (11.4); tarsus, 16.5–18 (17.6); middle toe, 8.5–9 (8.8).^b

Adult female.—Length (skin), 108; wing, 44; tail, 48; exposed culmen, 12; tarsus, 18.5; middle toe, 9.^c

Yucatan (Temax; Progreso).

(?) *Poliophtila bilineata* (not *Culicivora bilineata* Bonaparte?) BOUCARD, Proc. Zool. Soc. Lond., 1883, 439 (Progreso, Yucatan).—SALVIN, Ibis, 1888, 246 (Cozumel I., Yucatan; crit.).

Poliophtila albiventris LAWRENCE, Ann. N. Y. Acad. Sci., iii, no. 9, Dec., 1885, 273 (Temax, Yucatan; coll. G. N. Lawrence).

P[oliophtila] albiventris RIDGWAY, Man. N. Am. Birds, 1887, 569.—HELLMAYR, Tierreich, 18 Lief., 1903, 24.

POLIOPTILA NIGRICEPS Baird.

BAIRD'S GNATCATCHER.

Adult male in spring and summer.—Entire pileum, including nape, lores,^d and upper half (more or less) of auricular region, uniform glossy blue-black; hindneck, back, scapulars, lesser and middle wing-coverts, and rump, uniform bluish gray (between plumbeous and slate-gray); wings (except lesser and middle coverts) dusky brownish slate

^a In the adult male of this form there is sometimes an indication of a white superciliary streak.

^b Six specimens.

^c One specimen.

^d Occasionally there is a narrow loreal streak, or indication of one, possibly the result of incomplete change from winter to summer plumage; a narrow white orbital ring is also sometimes indicated, this being characteristic of the winter plumage.

color, the greater coverts broadly edged with gray (like color of back), the remiges more narrowly edged with paler gray, the tertials very broadly edged with white;^a upper tail-coverts and tail black, the outermost rectrix with most of its outer web and nearly terminal two-thirds of inner web white, the next with white on outer web extending about as far toward base as white on inner web of exterior rectrix, that on inner web occupying less than terminal half, the third broadly tipped with white, which follows edge of outer web for a greater or less distance toward base (sometimes nearly to base, but usually not farther than middle portion); sides of head (below the black pileum) and under parts white, the chest faintly shaded with pale bluish gray, passing into decided light bluish gray on sides; bill black, the basal portion of mandible paler and more grayish; iris brown; legs and feet dusky.

Adult male in autumn and winter (= *P. restricta* Brewster^b).—Similar to the spring and summer plumage, but black of pileum restricted to the forehead and crown (sometimes to the anterior portion of the latter), often intermixed with slate-gray feathers; lores more or less intermixed with pale gray or grayish white; upper portion of auricular region gray, like hindneck, the lower portion less purely white than in the summer plumage; eyelids white, forming a more or less distinct though incomplete orbital ring; gray of back, etc., rather duller.

Adult female.—Above plain slate-gray (much less bluish than in adult male), the pileum slightly darker than back; otherwise like the adult male, but dusky color of remiges paler and browner.

Young male in first autumn and winter.—Similar to the adult female, but upper parts more bluish gray.

Young, first plumage.—Similar to adult female, but gray of upper parts replaced by pale grayish brown or brownish gray, and texture of plumage different.

Adult male.—Length (skins), 103–114 (108.4); wing, 46.5–50 (48); tail, 47–53.5 (50.6); exposed culmen, 11–12 (11.3); tarsus, 17–19 (18.2); middle toe, 8.5–9.5 (9.2).^c

Adult female.—Length (skins), 104–109 (107.5); wing, 44–48 (45.6);

^a These white edgings indistinct or obsolete in worn midsummer plumage.

^b All specimens examined corresponding in character to *P. restricta* were taken in February and March, one taken March 19 having the black of the pileum extending as far backward as in *P. nigriceps*. All specimens corresponding to *P. nigriceps* were taken in May, June, July, and August, that taken during the last-named month having already assumed the white eyelids and many gray or whitish feathers on the lores. Females of the two supposed forms are quite indistinguishable from one another.

^c Eighteen specimens.

tail, 45.5–50.5 (49.4); exposed culmen, 11–12 (11.1); tarsus, 18–19 (18.2); middle toe, 8.5–9.5 (9).^a

Western Mexico, from southern Sonora (Alamos; Culiacan) to Oaxaca (Tehuantepec; Santa Efigenia; Puerto Angel; Huilotepec; Tapaná; Cuicatlan; Quiotepec); Pacific coast of Central America.^b

Polioptila nigriceps BAIRD, Review Am. Birds, July, 1864, 69 (Mazatlan, Sinaloa, Mexico; coll. U. S. Nat. Mus.).—LAWRENCE, Mem. Bost. Soc. Nat. Hist., ii, 1874, 267 (Mazatlan; Tepic); Bull. U. S. Nat. Mus., no. 4, 1876, 13 (Tapaná, Santa Efigenia, and Quiotepec, Oaxaca).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1880, 52, part (Mazatlan; Tepic; Tapaná, Santa Efigenia, and Quiotepec, Oaxaca; La Unión, Salvador (?)).—SHARPE, Cat. Birds Brit. Mus., x, 1885, 447, part (La Unión, Salvador c).—BREWSTER, Bull. Nutt. Orn. Club, vi, 1881, 105 (crit.).

[*Polioptila nigriceps* GRAY, Hand-list, i, 1869, 237, no. 3443.

P[olioptila] nigriceps RIDGWAY, Proc. U. S. Nat. Mus., v, 1882, 387 (crit., range, etc.); Man. N. Am. Birds, 1887, 570.

P[olioptila] nigriceps nigriceps HELLMAYR, Novit. Zool., vii, Dec., 1900, 538, part (Mexico); viii, 1901, 358, 360, part (Mazatlan; Tepic; Oaxaca; Tehuantepec; Salvador?); Tierreich, 18 Lief., 1903, 25, part (Mazatlan; Tepic; Oaxaca; Tehuantepec; Salvador?).

Polioptila nigriceps restricta BREWSTER, Descr. Sup. New Birds from Western N. Am. and Mex., Jan. 31, 1889, 97 (Alamos, s. Sonora; coll. W. Brewster); Auk, vi, Apr., 1889, 97.

P[olioptila] nigriceps restricta HELLMAYR, Novit. Zool., vii, 1900, 538, part ("Sud" Mexico d); viii, 1901, 358; Tierreich, 18 Lief., 1903, 26.

POLIOPTILA PLUMBEA (Baird).

PLUMBEOUS GNATCATCHER.

Adult male in spring and summer.—Pileum, down to and usually including lores (at least the upper portion^e) and upper margin of

^a Four specimens.

Specimens from different localities average, separately, as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Nine adult males from Sonora (= <i>P. restricta</i> Brewster)	48.1	51.2	11.2	18.4	9.1
Four adult males from Sinaloa and Tepic.....	48	50.7	11.1	18.4	9.1
Five adult males from Oaxaca	47.5	49.6	11.6	17.8	9.2
FEMALES.					
Two adult females from Sonora	46.2	48.9	10.7	18	8.7
Two adult females from Sinaloa and Tepic	45.5	48.7	11.5	18.7	9.2

^b A specimen in National Museum collection, without definite locality, collected by Capt. J. M. Dow.

^c The specimen described is probably *P. nigriceps*; the others enumerated are almost certainly not that form.

^d Costa Rica also cited.

^e The lores are sometimes wholly uniform black, rarely entirely white, this variation apparently depending neither on season nor age.

auricular region, uniform glossy black with a faint greenish blue luster; rest of upper parts uniform bluish slate-gray or plumbeous; wings dull or brownish slate color with pale gray edgings; upper tail-coverts and tail black, the outermost rectrix with outer web white, except basally, the inner web broadly tipped (for about 5-10 mm.) with white, the second more narrowly tipped with white and with outer web narrowly edged with the same; eyelids sometimes (usually?) partly white, but never (?) forming a continuous orbital ring; sides of head (below the black pileum) and under parts grayish white, becoming pure white on abdomen, anal region, and under tail-coverts; maxilla black; mandible blackish terminally, dusky grayish basally (in dried skins); iris brown; legs and feet dusky (in dried skins).

Adult male in autumn and winter.—Similar to the spring and summer plumage but black feathers of pileum more or less tipped with slate-gray.

Adult female.—Pileum and hindneck plain slate-gray; back, scapulars, lesser wing-coverts, and rump more brownish gray varying to hair-brown; otherwise similar to the adult male.

Young female, first plumage.—"Crown pale cinereous; rest of upper parts faded brown. The wings are uniform with the back, but all the primaries and secondaries have a broad white edging on their outer webs. The tail is dull black, with white areas on the outer rectrices corresponding in extent and purity with those of the adult. Beneath, pale ashy white."^a

Adult male.—Length (skins), 95-110 (102.4); wing, 45-48.5 (46.3); tail, 47-53.5 (50.1); exposed culmen, 8.5-10 (9.1); tarsus, 16-18.5 (17.2); middle toe, 8-9.5 (8.6).^b

Adult female.—Length (skins), 98-107 (103.2); wing, 44-47.5 (46.2); tail, 47.5-53 (49.7); exposed culmen, 8.5-10 (8.8); tarsus, 16.5-18 (17.7); middle toe, 8-9 (8.6).^c

^a Brewster, Bull. Nutt. Orn. Club, vii, 78.

^b Twenty-three specimens.

^c Eleven specimens.

Specimens from different geographic areas average, separately, as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Six adult males from southern Texas and Tamaulipas.....	46.8	51.3	9.2	17.4	8.7
Ten adult males from Arizona and Sonora.....	45.8	50.4	8.9	16.7	8.3
One adult male from San Diego County, California.....	47	50	9.5	18	9
Six adult males from Cape district, Lower California.....	46.5	48.6	9.3	17.6	9
FEMALES.					
One adult female from Tamaulipas.....	45	48	9	17.5	9
Eight adult females from Arizona.....	45.2	50.4	8.5	17.2	8.6
Three adult females from Cape district.....	46.2	48	9.5	17.7	8.7

Southwestern United States and adjacent parts of northern Mexico, from the upper Rio Grande Valley to the Colorado Valley, thence southward through Lower California (except more northern portion of Pacific side) to Cape St. Lucas and Margarita Island,^a north to southern Nevada (Vegas Valley, Bunkerville, etc.) and Inyo County, southeastern California, west to eastern Riverside County, California (Palm Springs); south to Tamaulipas (Jaumave, breeding), Nuevo Leon (Rodriguez, January), Chihuahua, and Sonora (Batamotal, April 20; Senoyta, January).

Culicivora atricapilla (not of Swainson) LAWRENCE, Ann. Lyc. N. Y., v, 1852, 124 (Texas).—BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 323 (Texas).—HEERMANN, Journ. Ac. Nat. Sci. Phila., ii, 1853, 262, part (Fort Yuma, California).—CASSIN, Illustr. Birds Cal., Tex., etc., 1854, pl. 27 (Texas; Mexico).

Culicivora mexicana (not of Bonaparte) CASSIN, Illustr. Birds Cal., Tex., etc., 1854, 163, 164 (Texas).

Culicivora plumbea BAIRD, Proc. Ac. Nat. Sci. Phila., vii, June, 1854, 118 (Bill Williams R., Arizona; coll. U. S. Nat. Mus.; =young male).

Poliophtila plumbea BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 382; Cat. N. Am. Birds, 1859, no. 283; ed. 1860 (Birds N. Am.), pl. 33, fig. 1; Rep. U. S. and Mex. Bound. Surv., ii, pt. 2, 1859, 14 (Boca Grande, Mexico); Rep. Ives' Colorado Exp., pt. v, 1861, 6; Review Am. Birds, 1864, 74.—KENNERLY, Rep. Pacific R. R. Surv., x, pt. iv, no. 3, 1859, 26, pl. 33, fig. 2 (Bill Williams Fork; Camp 113).—HENRY, Proc. Ac. Nat. Sci. Phila., 1859, 107 (New Mexico).—COUES, Ibis, 1865, 538, in text (Arizona); Proc. Ac. Nat. Sci. Phila., 1866, 66 (Bill Williams R., Fort Yuma, Fort Mojave, Colorado Chiquito, etc.); Check List, 1873, no. 25; 2d ed., 1882, no. 38; Birds Col. Val., 1878, 105.—COOPER, Am. Nat., iii, 1869, 474, 479 (Fort Mojave); Orn. Cal., 1870, 37.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 80, pl. 6, fig. 6.—HENSCHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 155 (Arizona).—BREWSTER, Bull. Nutt. Orn. Club, vi, 1881, 102 (crit.; synonymy); vii, 1882, 77 (Tucson, Camp Lowell, and near Yuma, Arizona; habits; crit.; descr. nest and eggs); Bull. Mus. Comp. Zool., xli, 1902, 210 (La Paz, Lower California, Mar., Apr.).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 28.—BELDING, Proc. U. S. Nat. Mus., v, 1883, 534 (Cape St. Lucas).—SHARPE, Cat. Birds Brit. Mus., x, 1885, 450.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1888, no. 752.—MORCOM, Bull. Ridgway Orn. Club, no. 2, 1887, 56 (Yuma, Arizona, breeding).—SCOTT, Auk, v, 1888, 166 (near Tucson, and in valley of San Pedro R., Arizona, resident; remarks on plumage).—JOHNSON, Auk, iv, 1889, 280 (Palm Springs, San Diego Co., California, 8 specs., Apr.).—TOWNSEND (C. H.), Proc. U. S. Nat. Mus., xiii, 1890, 137 (Cape St. Lucas, Apr. 7; La Paz, Mar. 14; Concepcion Bay, Mar. 19).—STEPHENS, Auk, vii, 1890, 296, 297 (Colorado

^a The only specimens examined from Margarita Island (two in number) very likely represent a different form; both have decidedly shorter wings and longer bills than specimens from the mainland of Lower California; they have the upper parts decidedly darker, the dull slate color of the pileum contrasting abruptly and strongly with the dull white of the loreal region; there is, apparently, a distinct whitish crescentic mark immediately behind the dark grayish auricular region, a feature which I have not been able to find in any specimen of true *P. plumbea*. Both specimens were skinned from alcohol; one is an immature male, the other probably an adult female. Should the bird from Margarita Island prove to be distinct, I propose for it the name *Poliophtila margaritæ*.

- Desert, winter).—NEHRING, Our Native Birds, i, 1893, 96.—ALLEN, Bull. Am. Mus. N. H., v, 1893, 42 (Opato, n. Sonora).—FISHER (A. K.), North Am. Fauna, no. 7, 1893, 144 (Resting Spring, s. e. California; Vegas Valley and Bunkerville, s. Nevada).—BAILEY (Florence M.), Handb. Birds W. U. S. 1902, 466.—GRINNELL, Check List Calif. Birds, 1902, 73 (California range). [*Polioptila plumbea* COUES, Key N. Am. Birds, 1872, 79.
- P[olioptila] plumbea* COUES, Key N. Am. Birds, 2d ed., 1884, 261.—RIDGWAY, Man. N. Am. Birds, 1887, 570.—HELLMAYR, Tierreich, 18 Lief., 1903, 22.
- Polioptila melanura* LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., vi, 1858, 168 (Ringgold Barracks, Texas; coll. G. N. Lawrence).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 382, part (Rio Grande Valley; Fort Yuma); Cat. N. Am. Birds, 1859; no. 284, part; Proc. Ac. Nat. Sci. Phila., 1859, 301, 304 (Cape St. Lucas); Review Am. Birds, 1864, 68, part (Cape St. Lucas; Fort Yuma).—HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, no. 2, 1859, 39 (Fort Yuma and junction Gila and Colorado rivers; habits; notes).—COUES, Proc. Ac. Nat. Sci. Phila., 1866, 66 (Pima villages, etc., Arizona); Check List, 1873, no. 24, part; 2d ed., 1882, no. 37, part; Birds Col. Val., 1878, 106, part.—COOPER, Orn. Col., 1870, 37, part (Fort Mojave, California).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 81, part; iii, 1874, 502, part (Arizona).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 155 (Arizona).
- P[olioptila] melanura* COUES, Key N. Am. Birds, 2d ed., 1884, 261, part.

POLIOPTILA CALIFORNICA Brewster.

BLACK-TAILED GNATCATCHER.

Similar to *P. plumbea*, but much darker, and with still less white on lateral rectrices.

Adult male.—Entire pileum uniform glossy blue-black; hindneck, back, scapulars, lesser wing-coverts, and rump uniform slate color; wings (except lesser coverts) dull brownish slate with paler edgings; upper tail-coverts and tail black, the two outermost rectrices margined at tip with white, the exterior one with outer web edged with white; sides of head, below black pileum, and under parts pale gray (between no. 7 and no. 8), becoming white on center of abdomen and anal region; maxilla black; mandible blackish terminally, grayish basally; iris brown; legs and feet dusky; length (skins), 96–106 (102.6); wing, 44.5–47 (45.9); tail, 49–50.5 (49.6); exposed culmen, 9–9.5 (9.1); tarsus, 17–18 (17.4); middle toe, 9.^a

Adult female.—No black on pileum; above slate color (duller than in adult male), becoming more olive (sometimes decidedly olive) on back, scapulars, and rump; otherwise like adult male; length (skins), 95–105 (100); wing, 44.5–47.5 (45.8); tail, 48–51 (49.7); exposed culmen, 9–9.5 (9.2); tarsus, 18; middle toe, 9.^b

Southern California, west and north of Colorado Desert, and Pacific coast district of northern Lower California; north to Ventura County,

^a Five specimens.

^b Three specimens.

south to Santa Rosalia Bay and San Fernando (breeding); east (in winter only?) to the Colorado River (Fort Yuma).

Culicivora atricapilla (not of Swainson) HEERMANN, Journ. Ac. Nat. Sci. Phila., ii, 1853, 262, part (San Diego, California).

Poliophtila melanura (not of Lawrence) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 382, part (San Diego, California); Cat. N. Am. Birds, 1859, no. 284; Birds N. Am., 1860, 382, part; Review Am. Birds, 1864, 68, part (San Diego).—HEERMANN, Rep. Pacific R. R. Surv., x, 1859, 39, part (San Diego).—COOPER, Am. Nat., iii, 1869, 184 (Cajon Pass, California); Orn. Cal., i, 1870, 37, part (San Diego and north in Sierra Nevada to 39°; Santa Catalina I., Oct.).—COUES, Check List, 1873, no. 284, part; 2d ed., 1882, no. 37, part; Birds Col. Val., 1878, 106, part.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 81, part, pl. 6, fig. 7; iii, 1874, 502, part (San Buenaventura, California).

P[oliophtila] melanura COUES, Key N. Am. Birds, 2d. ed., 1884, 261, part.

(?) *Poliptila* (typographical error) *melanura* RIDGWAY, Proc. U. S. Nat. Mus., v, 1883, 529 (Santa Rosalia Bay, Lower California).

Poliophtila californica BREWSTER, Bull. Nutt. Orn. Club, vi, Apr., 1881, 103 (Riverside, San Bernardino Co., California; coll. W. Brewster).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 29.—SHARPE, Cat. Birds, Brit. Mus., x, 1885, 451.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 753.—MORCOM, Bull. Ridgway Orn. Club, no. 2, 1887, 57 (San Bernardino Co., California).—BENDIRE, Proc. U. S. Nat. Mus., x, 1888, 548 (descr. nest and eggs).—NEHRING, Our Native Birds, i, 1893, 97.—FISHER (A. K.), North Am. Fauna, no. 7, 1893, 144 (Reche Canyon, near San Bernardino, California).—ANTHONY, Auk, xii, 1895, 143 (San Fernando, Lower California, breeding).—GRINNELL, (J.), Pub. 2, Pasadena Ac. Sci., 1898, 50 (Los Angeles Co., California, resident); Check List Calif. Birds, 1902, 73 (California range).—SWARTH, Condor, iv, 1902, 86 (descr. winter plumage).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 466.

P[oliophtila] californica RIDGWAY, Man. N. Am. Birds, 1887, 570.—HELLMAYR, Tierreich, 18 Lief., 1903, 23.

POLIOPTILA LEMBEYEI (Gundlach).

URBAN GNATOATCHER.

Adult male.—Above uniform slate-gray; wings dull blackish slate or slate-black with pale gray edgings, these broader and paler on tertials; upper tail-coverts and tail black, the outermost rectrix with terminal two-thirds (approximately) of outer web and between terminal third and half of inner web white, the next with less of white, the third broadly tipped with white; a narrow orbital ring of white; loreal, auricular, suborbital, and malar regions and under parts very pale gray or grayish white, becoming pure white on abdomen; a curved black line beginning near posterior angle of eye and extending thence backward and downward, between the deep gray of occiput and hind-neck and pale gray of auricular region; maxilla black; mandible grayish (pale bluish gray in life?) basally, blackish terminally; legs and feet dusky (in dried skins); length (skins), 100–108 (103.5); wing, 40–

43.5 (41.4); tail, 47-52 (50); exposed culmen, 10-10.5 (10.1); tarsus, 15-16.5 (15.6); middle toe, 8-9 (8.4).^a

Adult female (♀).—Similar to the adult male, but gray of upper parts duller and slightly brownish, and black line behind auricular region narrower, less distinct; length (skins), 95-109 (102); wing, 39.5-40 (39.7); tail, 48-49 (48.5); exposed culmen, 10; tarsus, 16; middle toe, 8.5-9 (8.7).^b

Island of Cuba, Greater Antilles.

Culicivora lembeyi GUNDLACH, Ann. Lyc. Nat. Hist. N. Y., vi, 1858, 273 (eastern Cuba).—ALBRECHT, Journ. für Orn., 1861, 211 (crit.).

[*Culicivora*] *lembeyi* LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., vi, 1858, 276 (crit.).

[*Culicivora*] *lembeyi* BREWER, Proc. Bost. Soc. N. H., vii, 1860, 306.

[*Poliophtila*] *lembeyi* GUNDLACH, Journ. für Orn., ix, Sept., 1861, 324; Repert. Fauna Nat. Cuba, i, 1865, 231.

Poliophtila lembeyi GUNDLACH, Journ. für Orn., 1872, 410 (habits; descr. nest and eggs); Orn. Cubana, 1873, 61.—CORY, Cat. W. I. Birds, 1892, 120, 129.

[*Poliophtila*] *lembeyi* GRAY, Hand-list, i, 1869, 237, no. 3441.

[*Poliophtila lembeyi*] HELLMAYER, Tierreich, 18 Lief., 1903, 19.

[*Poliophtila*] *lembeyi* BAIRD, Review Am. Birds, 1864, 68.

Poliophtila lembeyi BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 78.—CORY, Auk, iii, 1886, 22; Birds W. I., 1889, 36; Cat. W. I. Birds, 1892,

18.—SHARPE, Cat. Birds Brit. Mus., x, 1885, 444.—CHAPMAN, Bull. Am. Mus. N. H., iv, 1892, 312 (near Trinidad, Cuba).

[*Poliophtila*] *lembeyi* RIDGWAY, Man. N. Am. Birds, 1887, 571.

^a Four specimens.

^b Two specimens, neither of them sexed, and possibly both immature males.

ADDENDA.

(Including corrections.)

Page 5: To citations of *Motacilla alba* add:

SEEBOHM and BROWN, Ibis, 1876, 125 (lower Petchora, Russia; habits).—SEEBOHM, Ibis, 1878, 343 (valley of Yenesei, to lat. $71\frac{1}{2}^{\circ}$ and Berjussa, Siberia; crit.; habits); 1882, 216 (Astrakhan, summer); 1884, 346 (Great Liakoff I., Siberia).—IRBY, Ibis, 1879, 344 (Alora, Spain, breeding).—SCULLY, Ibis, 1881, 451 (Gilgit, n. India; crit.).—BIDDULPH, Ibis, 1882, 280 (Gilgit).—REID, Ibis, 1885, 244 (Morocco).—MEADE-WALDO, Ibis, 1893, 190 (Canary Islands).—PEARSON and BIDWELL, Ibis, 1894, 230 (n. Norway, breeding).—PEARSON, Ibis, 1896, 208 (Russian Lapland; descr. eggs); 214 (Gobista R., Kolguev).—POPHAM, Ibis, 1897, 94 (Yeneseisk and Golchika, Siberia; Kharbarova, Ugor Straits; descr. nest and eggs); 1898, 499 (Yenesei R., breeding).—WITHERBY, Ibis, 1903, 528 (Fars, s. w. Persia).

Page 7: To citations of *Motacilla ocularis* add:

BREWSTER, Bull. Mus. Comp. Zool., xli, 1902, 192 (La Paz, Lower California).

Page 8: To synonymy of *Budytes flavus alascentis* add:

Budytes flavus leucostriatus (not *Budytes leucostriatus* Homeyer) GRINNELL (J.), Pacific Coast Avifauna, no. 1, 1900, 57 (coast of Kotzebue Sound, Kowak delta, etc., Alaska; habits; descr. nest and eggs).—MCGREGOR, Condor, iv, 1902, 143 (Golofnin Bay, Alaska, June; habits; notes).

Budytes flavus alascentis RIDGWAY, Proc. Biol. Soc. Wash., xvi, Sept. 30, 1903, 105 (St. Michael, Alaska; coll. U. S. Nat. Mus.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xxi, 1904, 417.

Page 12: To citations of *Anthus pensilvanicus* add:

PALMER, Avifauna Pribilof Islands, 1899, 421 (1 spec., Aug. 15, 1868).—BREWSTER, Bull. Mus. Comp. Zool., xli, 1902, 193 (Cape St. Lucas district, common winter resid.).

Page 17: To citations of *Anthus cervinus* add:

VON HEUGLIN, Ibis, 1872, 61 (Waigats and Nikolskaja, n. Russia).—SEEBOHM and BROWN, Ibis, 1876, 122 (lower Petchora, Russia; habits).—SEEBOHM, Ibis, 1878, 342 (Koorayika R., valley of Yenesei R., and Tschuski Land, Siberia; crit.; breeding habits).—BIDDULPH, Ibis, 1882, 280 (Gilgit, n. India).—PEARSON and BIDWELL, Ibis, 1894, 230 (n. Norway; breeding habits).—PEARSON, Ibis, 1896, 208 (Russian Lapland; habits; descr. eggs), 214 (Kolguev; habits; descr. eggs), 219 (Novaya Zemlya).—POPHAM, Ibis, 1897, 94 (Yenesei R.; descr. nest and eggs); 1898, 500 (Yenesei R.).—BREWSTER, Bull. Mus. Comp. Zool., xli, 1902, 193 (La Paz, Lower California).—WITHERBY, Ibis, 1903, 528 (Fars, s. w. Persia).

Page 19: To citations of *Anthus pratensis* add:

SEEBOHM and BROWN, Ibis, 1876, 12 (lower Petchora, Russia; habits).—DIXON, Ibis, 1885, 83 (St. Kilda; breeding).—REID, Ibis, 1885, 244 (Morocco).—PEARSON and BIDWELL, Ibis, 1894, 230 (n. Norway; breeding).—PEARSON, Ibis, 1896, 208 (Russian Lapland; descr. eggs and young).

Page 22: To citations of *Anthus spragueii* add:

KNIGHT, Bull. Univ. Wyom. Agric. Ex. Sta., no. 55, 1902, 150 (Cheyenne, Wyoming. 1 spec., Apr. 24, 1888).

Page 26, footnote: The earliest publication of *Alopochelidon* to be cited as follows:

Alopochelidon Ridgway, Proc. Biol. Soc. Wash., xvi, Sept. 30, 1903, 106. (Type, *Hirundo fucata* Temminck.)

Page 27, footnote: The earliest publication of *Orochelidon* and *Diplochelidon* to be cited as follows:

Orochelidon Ridgway, Proc. Biol. Soc. Wash., xvi, Sept. 30, 1903, 106. (Type, *Petrochelidon murina* Cassin, = *Hirundo cinerea* Gmelin?)

Diplochelidon Ridgway, Proc. Biol. Soc. Wash., xvi, Sept. 30, 1903, 106. (Type, *Hirundo melanoleuca* Maximilian.)

Page 34: To citations of *Progne subis* add:

NEHRLING, Our Native Birds, i, 1893, 336, pl. 18, figs. 2, 3.—KNIGHT, Bull. Univ. Wyom. Agric. Ex. Sta., no. 55, 1902, 138 (e. Wyoming, summer res.).

Page 34; To citations of *Progne purpurea* add:

WOODHOUSE, in Rep. Sitgreaves' Expl. Zuni and Col. R., 1853, 65 (Indian Territory; Texas.)

Page 40: To citations of *Progne dominicensis* add:

FEILDEN, Ibis, 1889, 483 (Barbados).—BOWDISH, Auk, xx, 1903, 15 (Porto Rico; habits).

Page 42: To range of *Progne chalybea*, add: Guerrero (Egido Nuevo).

Page 44: To citations of *Progne modesta* add:

SNODGRASS and HELLER, Proc. Wash. Ac. Sci., v, 1904, 347 (range, measurements, etc.).

Page 48: To breeding range of *Petrochelidon lunifrons lunifrons* add: Jalisco (La Barca).

Page 50: To synonymy of *Petrochelidon lunifrons lunifrons* add:

H[irundo] fulva GAMBEL, Journ. Ac. Nat. Sci. Phila., ii, 1847, 31 (California).

Page 50: To citations of *Petrochelidon pyrrhonota* add:

GIBSON, Ibis, 1885, 277 (Paisandú, Uruguay; descr. nest and eggs).

Page 51: To citation of *Petrochelidon lunifrons tachina* add:

AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xxi, 1904, 415 (check list no. 612a).

Page 52: To breeding range of *Petrochelidon lunifrons melanogaster* add: Puebla (Atlixco).

Page 52: To synonymy of *Petrochelidon lunifrons melanogaster* add:

Petrochelidon lunifrons melanogastra AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xxi, July, 1904, 415.

Page 54: To citations of *Petrochelidon fulva* add:

BONAPARTE, Notes Orn. Coll. Delattre, 1854, 82.

Page 55: To citations of *Petrochelidon fulva* add:

BOWDISH, Auk, xx, 1903, 15 (Porto Rico; habits).

Page 59: To breeding range of *Stelgidopteryx serripennis* add: Michoacan (Los Reyes). Some of the specimens from this locality are intermediate between *S. serripennis* and *S. salvini*; therefore, the latter (see p. 62) should stand as *Stelgidopteryx serripennis salvini*. The specimen from Jalisco (La Barca) (see p. 62) is also intermediate, though in coloration much nearer *S. s. salvini*.

Page 61: To citations of *Stelgidopteryx serripennis* add:

EMBODY, Bull. Dept. Geol. and N. H. Colgate Univ., 1901, 27 (Madison Co., New York, rare, May, June).

Page 63: To synonymy of *Stelgidopteryx salvini* add:

Stelgidopteryx salvini RIDGWAY, Proc. Biol. Soc. Wash., xvi, Sept. 30, 1903, 107 (Dueñas, Guatemala; coll. U. S. Nat. Mus.).

Page 71: To citations of *Atticora cyanoleuca* add:

LÖNNBERG, Ibis, 1903, 456 (San Luis, Bolivia).

Page 75: To citations of *Cotyle riparia* add:

WOODHOUSE, in Rep. Sitgreaves' Expl. Zuffi and Col. R., 1853, 65 (Indian Territory; New Mexico).

Page 75: To citations of *Cotile riparia* add:

SALVIN, Ibis, 1888, 257 (Cozumel I.).

Page 75: Line 16 from top, for "Cuba" read California. In line 17, for GUNDLACH read CABANIS, and in line 18, insert after (Cuba); GUNDLACH, Journ. für Orn.

Page 76: To citations of *Clivicola riparia* add:

BELDING, Distr. Land Birds Pacific District, 1890, 194 (breeding at Santa Cruz and in Contra Costa and Alameda counties, California).

Page 80: To citations of *Hirundo rustica* add:

SHARPE and WYATT, Monogr. Hirundinidæ, 1894, 213, pls. 36, 37, 38.

Page 81: To winter range of *Hirundo erythrogastra* add Chili (Santiago and Arica, according to Philippi, Zool. Gart., xxxix, 1898, 19, and Aculen, according to Philippi, Anal. Mus. Nac. Chili, xv, 1902, 25); and to breeding range add Puebla (Atlixco).

Page 82: In line 13 from top, for NUTTING read RIDGWAY.

Page 82: To citations of *Hirundo erythrogaster* add:

SALVIN, Ibis, 1888, 256 (Cozumel and Ruatan islands, Yucatan).—SNODGRASS and HELLER, Proc. Wash. Acad. Sci., v, 1904, 348 (Charles, Chatham, and Hood islands, Galapagos).

Page 82: To citations of *Hirundo erythrogastra* add:

FEILDEN, Ibis, 1889, 483 (Barbados).—HARTEET, Ibis, 1893, 317 (Curaçao).—BONHOTE, Ibis, 1903, 287 (Green Cay, Bahamas).

Page 83: In line 14 from top, for GUNDLACH read CABANIS, and for 1855 read 1856. In line 26, for 98 read 97. In line 27, for 487 read 271. In line 28, for 1878 read 1879. In line 34, for 1869 read 1870.

Page 84: To citations of *Hirundo erythrogastra palmeri* add:

MCGREGOR, Condor, iv, 1902, 143 (Amaknak I., Cape Denbigh, and Golofnin Bay, Alaska).

Page 84: To citations of (?) *Hirundo tyleri* add:

BERLEPSCH and STOLZMANN, Proc. Zool. Soc., Lond., 1892, 398 (Callao, Peru).

Page 89: To citations of *Tachycineta bicolor* add:

BONAPARTE, Notes Orn. Coll. Delattre, 1854, 82.—MCGREGOR, Condor, iv, 1902, 143 (Cape Denbigh, Alaska, Aug. 8).

Page 89: In first line, for BLAND read WILLIS, and in line 30, after (Cuba) insert GUNDLACH, Journ. für Orn.

Page 90: In line beginning with *Hirundo prasina* for 1831 read 1830.

Page 92: To citations of *Tachycineta albilinea* add:

SALVIN, Ibis, 1888, 257 (Meco and Holbox islands, Yucatan).

Page 94: To citations of *Tachycineta thalassina* add:

BONAPARTE, Notes Orn. Coll. Delattre, 1854, 82.

Page 94: To range of *Tachycineta thalassina thalassina* add: Michoacan (Patamban).

Page 97, after *Hirundo thalassina* add:

H[irundo] thalassina GAMBEL Journ. Ac. Nat. Sci. Phila., i, 1847, 31 (California).

Page 100: To citations of *Callichelidon cyaneoviridis* add:

BONHOTE, Ibis, 1903, 287 (New Providence, Bahamas; habits).

Page 100: The earliest citation of *Lamprochelidon* is

Lamprochelidon RIDGWAY, Proc. Biol. Soc. Wash., xvi, Sept. 30, 1903, 106. (Type, *Hirundo euchrysea* Gosse.)

Page 103: To citations of *Hirundo sclateri* add:

CHRISTY, Ibis, 1897, 322 (La Vega, Santo Domingo).

Page 108: To citations of *Ampelis garrulus* add:

SWINHOE, Ibis, 1874, 445 (Chefoo, China).—SEEBOHM and BROWN, Ibis, 1876, 219 (lower Petchora, Russia; habits; crit.).—POPHAM, Ibis, 1898, 501 (Yenesei R., Siberia).

Page 111: To southward range of *Ampelis cedrorum* add: Panama (Chiriqui), according to Salvadori, Boll. Mus. Zool., etc., Torino, no. 339, 1899, 3.

Page 112: To citations of *Ampelis cedrorum* add:

SALVIN, Ibis, 1888, 255 (Cozumel I.).

Page 127: To citations of *Dulus dominicus* add:

SALLÉ, Proc. Zool. Soc. Lond., 1857, 232 (Santo Domingo).—CHRISTY, Ibis, 1897, 322 (Santo Domingo; habits).

Page 138: To citations of *Vireo calidris* add:

(?) SALVIN, Ibis, 1888, 253 (Cozumel I.).

Page 141: To citations of *Vireo calidris* add:

FEILDEN, Ibis, 1889, 483 (Barbados).

Page 143: In synonymy of *Vireosylva calidris barbatula* add:

Vireo calidris BONHOTE, Ibis, 1903, 287 (Green Cay, Bahamas; habits).

Page 150: In line 3 from bottom, for 484 read 6. In line 8 from bottom, cancel 1878, 158 (Porto Rico).

Page 150: To citations of *Vireo olivaceus* add:

SALVIN, Ibis, 1888, 253 (Ruatan and Bonacca islands, Honduras); 1890, 84 (e. Mexico, British Honduras, and Bay islands, breeding).

Page 150: To citations of *Vireosylva olivacea* add:

LAYARD, Ibis, 1873, 377 (Pará, Brazil; food).

Page 150: Add to synonymy:

[*Phyllomanes*] *olivaceus* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1882, 38.

Page 152: Add to citations of *Vireo philadelphicus*:

SALVIN, Ibis, 1888, 254 (Cozumel I.).

Page 155: Add to citations of *Vireo gilvus*:

SCHULTZE, Summer Birds Centr. Texas, 1902, 20.

Page 156: To winter range of *Vireosylva gilva swainsonii* add Guatemala; specimen in collection of American Museum of Natural History, according to Frank M. Chapman, in letter to Prof. W. W. Cooke.

Page 156: To southward range of *Vireosylva gilva swainsonii* add: Michoacan (Zamora, January; Los Reyes, February; La Salada, March) and Guerrero (El Limon, April 1; El Rincon, May 8).

Page 157: To synonymy of *Vireosylva gilva swainsonii* add:

[*Phyllomanes*] *gilvus* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1882, 38 (Oaxaca).

Page 158: The first published description of *Vireosylva gilva brewsteri* is to be cited as follows:

Vireosylva gilva brewsteri RIDGWAY, Proc. Biol. Soc. Wash., xvi, Sept. 30, 1903, 108 (Bravo, Chihuahua; coll. William Brewster).

Page 160: To synonymy add:

Vireosylva josephæ costaricensis RIDGWAY, Proc. Biol. Soc. Wash., xvi, Sept. 30, 1903, 107 (San José, Costa Rica; coll. U. S. Nat. Mus.).

Page 164: To winter range of *Lanivireo flavifrons* add: Bahamas, according to Moore, Proc. Bost. Soc. N. H., xix, 242, and Bonhote, Ibis, 1903, 173, 288.

Page 165: In line 8 from top, for GUNDLACH read CABANIS. In line 9, after (Cuba) insert: GUNDLACH, Journ. für Orn.

Page 165: To citations of *Vireo flavifrons* add:

BONHOTE, Ibis, 1903, 288 (Mangrove Cay, Andros I., Bahamas).

Page 166: To synonymy of *Lanivireo flavifrons* add:

[*Phyllomanes*] *flavifrons* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1882, 38 (Mexico).

Page 169: To synonymy of *Lanivireo solitarius solitarius* add:

[*Phyllomanes*] *solitarius* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1882, 38 (Mexico).

Page 171: To winter range of *Lanivireo solitarius plumbeus* add: Michoacan (La Salada, March 20; near Ahuacan, March 25) and Guerrero (El Limon, April 2).

Page 173: To winter range of *Lanivireo solitarius cassinii* add: Michoacan (Zamora, Jan. 24; Patamban, Jan. 30).

Page 174: To citations of *Vireo solitarius* (under *Lanivireo solitarius cassinii*) add:

KNIGHT, Bull. Univ. Wyom. Agric. Ex. Sta., no. 55, 1902, 144 (Fort Bridger, Wyoming).

Page 181: To citations of *Vireo bairdi* add:

SALVIN, Ibis, 1888, 254 (Cozumel I.).

Page 184: In line 10 from top of synonymy, for GUNDLACH read CABANIS. In line 11, for 484 read 404, and after (Cuba) insert: GUNDLACH, Journ. für Orn. In line 13, after 1862 insert 42.

Page 187: To synonymy of *Vireosylva flavoviridis flavoviridis* add:

[*Phyllomanes*] *flavoviridis* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1882, 38 (Guatemala).

Page 190: To citations of *Vireo crassirostris* add:

BONHOTE, Ibis, 1903, 287 (New Providence I., Bahamas; habits; crit.).

Page 194: To citations of *Vireo ochraceus* add:

SALVIN, Ibis, 1888, 255 (Holbox and Mugeris islands, Yucatan; Ruatan Island, Honduras; crit.).

Page 196: To synonymy of *Vireo huttoni huttoni* add:

Vireo huttoni BONAPARTE, Notes Orn. Coll. Delattre, 1854, 60, footnote.

Page 197: Add to synonymy of *Vireo huttoni mexicanus*:

Vireo huttoni mexicanus RIDGWAY, Proc. Biol. Soc. Wash., xvi, Sept. 30, 1903, 107 (Mount Orizaba, Puebla, s. e. Mexico; coll. U. S. Nat. Mus.).

Page 199: Add to synonymy of *Vireo huttoni cognatus*:

Vireo huttoni cognatus RIDGWAY, Proc. Biol. Soc. Wash., xvi, Sept. 30, 1903, 107 (Sierra de la Laguna, Lower California; coll. William Brewster).

An additional subspecies of *Vireo huttoni* has been described since the pages of the present volume pertaining to the Vireonidæ were printed. If tenable it should probably stand as—

VIREO HUTTONI MAILLIARDORUM (Grinnell)

SANTA CRUZ ISLAND VIREO.

“CHARACTERS.—Similar to *Vireo huttoni* of the mainland of California, but slightly inferior in size with especially smaller bill; coloration darker, more leaden olive above and a little more buffy yellow below posteriorly.” (Original diagnosis.)

Vireo mailliardorum GRINNELL (J.), Condor, v, no. 6, Nov., 1903, 157 (Friars Harbor, Santa Cruz I., California; coll. J. Grinnell).

Page 201: To range of *Vireo hypochryseus hypochryseus* add: Michoacan (Los Reyes).

Page 205: To localities in Guerrero add: El Limon, April 1; Tecpan, April 15; Dos Arroyos, May 4. The Guerrero mentioned as a locality in Tamaulipas is in Nuevo Leon.

Page 206: To citations of *Vireo bellii* add:

KNIGHT, Bull. Univ. Wyom. Agric. Exp. Sta., no. 55, 1902, 144 (Freezeout Mts., e. Wyoming).

Page 208: Add to synonymy:

Vireo bellii arizonæ RIDGWAY, Proc. Biol. Soc. Wash., xvi, Sept. 30, 1903, 108 (Tucson, Arizona; coll. U. S. Nat. Mus.).

Page 216, footnote: To the synonymy of the extralimital species of *Pachysylvia* add:

Pachysylvia flavipes Oberholser, Proc. Biol. Soc. Wash., xvi, June 25, 1903, 101.

Pachysylvia griseipes Oberholser, Proc. Biol. Soc. Wash., xvi, June 25, 1903, 101.

Pachysylvia acuticauda Oberholser, Proc. Biol. Soc. Wash., xvi, June 25, 1903, 101.

Page 218: To citation of *Sylvicola decurtata* BONAPARTE add:

(Guatemala; type in coll. Velasquez).

Page 218: To citation of *Pachysylvia decurtata* add:

OBERHOLSER, Proc. Biol. Soc. Wash., xvi, 1903, 101.

Page 219: To synonymy add:

Pachysylvia ochraceiceps OBERHOLSER, Proc. Biol. Soc. Wash., xvi, June 25, 1903, 104, part.

Page 220: To synonymy of *Pachysylvia ochraceiceps pallidipectus* add:

Pachysylvia ochraceiceps OBERHOLSER, Proc. Biol. Soc. Wash., xvi, June 25, 1903, 104, part.

Pachysylvia ochraceiceps pallidipectus RIDGWAY, Proc. Biol. Soc. Wash., xvi, Sept. 30, 1903, 108 (Angostura, Costa Rica; coll. U. S. Nat. Mus.).

Page 221: To synonymy of *Pachysylvia aurantiifrons aurantiifrons* add:

Pachysylvia aurantiifrons OBERHOLSER, Proc. Biol. Soc. Wash., xvi, Sept. 30, 1903, 101.

Page 221: To synonymy of *Pachysylvia viridiflava* add:

Pachysylvia viridiflava OBERHOLSER, Proc. Biol. Soc. Wash., xvi, June 25, 1903, 101.

Page 224: To synonymy of *Vireolanus pulchellus viridiceps* add:

Vireolanus pulchellus viridiceps RIDGWAY, Proc. Biol. Soc. Wash., xvi, Sept. 30, 1903, 108 (Panama City, Panama; coll. Am. Mus. Nat. Hist.)

Page 225: The specimen described as the "adult female (?) of *Vireolanus melitophrys*, but which I have suggested, in footnote c, may represent "a paler arid region (table-land) form," has been duplicated by an adult female collected at Huitzilac, State of Morelos, by Messrs. Nelson and Goldman, of the U. S. Biological Survey. Mr. Nelson is quite sure these two specimens, together with a young male from Huitzilac, represent a previously undescribed form, which he has described as—

VIREOLANIUS MELITOPHRYS GOLDMANI Nelson.

GOLDMAN'S SHRIKE-VIREO.

Similar to *Vireolanus melitophrys melitophrys*, but larger, with shorter bill; coloration paler and duller, the pileum and hindneck light brownish gray (nearly mouse gray) merging gradually into the olive-green of the back, instead of clear slate-gray, abruptly defined posteriorly; broad postocular stripe slate color instead of black; black submalar streak heavier; band across chest paler chestnut-rufous, not continued along sides, which are pale cinnamon-buffy anteriorly, passing into olive-gray on flanks.

Young male.—Pileum and hindneck light brownish gray, tinged with cinnamon; superciliary stripe light ochraceous instead of yellow; under parts of body (except narrow median stripe of whitish) dull buff or pale cinnamon-buff. (Otherwise much like adult female.)

Adult female.—Length (skins), 170–173 (171.5); wing, 83–84 (83.5); tail, 72–73 (72.5); exposed culmen, 17.5; tarsus, 25; middle toe, 15–15.5 (15.2).^a

"Oak forest on south slope of the mountains bordering south side

^a Two specimens.

of Valley of Mexico, in States of Mexico and Morelos (7000 to 9000 feet)." (Nelson.)

Vireolanus melitophrys (not of Bonaparte) SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 209, part (Valley of Mexico).—RIDGWAY, Birds North and Mid. America, iii, 1904, 225, part (supposed female from Valley of Mexico).

Vireolanus melitophrys goldmani NELSON, Proc. Biol. Soc. Wash., xvi, Nov. 30, 1903, 115 (Huitzilac, Morelos, s. Mexico; coll. U. S. Nat. Mus.).

Page 229: To synonymy of *Cyclarhis flaviventris flaviventris* add:

C[yclorhis] flaviventris BONAPARTE, Notes Orn. Coll. Delattre, 1854, 60, footnote.

Page 232: To citations of *Cyclorhis flavipectus subflavescens* add:

BERLEPSCH, Ibis, 1888, 91 (Costa Rica; Veragua).

A species of this genus not seen by me is

CYCLARHIS COIBÆ Hartert.

COIBA ISLAND PEPPER-SHRIKE.

"Nearest to *C. insularis*, Ridgw., from Cozumel Island off Yucatan, but much more yellow on the breast and sides of body. Differs from *C. flaviventris* in its shorter wings, more brownish crown, back, wings, and tail, darker sides of chest, and creamy-white middle of abdomen and under tail-coverts, also in the darker cheeks and ear-coverts.

"Differs from *C. flavipectus* in the much more brownish crown and back, wings, and tail, much darker ashy ear-coverts, much less bright yellow throat and chest, and much smaller creamy-white area on the abdomen.

"*Hab.* Coiba Island, off Panama." (Original description.)

Cyclorhis coibæ HARTERT, Bull. Brit. Orn. Club, xii, no. lxxxiv, Dec. 30, 1901, 33 (Coiba I., Bay of Panama; coll. Tring Mus.).

Page 246: To citations of *Lanius ludovicianus migrans* add:

EMBOLDY, Bull. Dept. Geol. and N. H. Colgate Univ., 1901, 28 (Madison Co., New York, breeding).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xxi, 1904, 416 (check list no. 622e).

Page 249: Insert in synonymy: *Lanius mexicanus* BREHM, Journ. für Orn., 1854, 148 (descr.), this canceling the citation of page 148 in the other citation of Brehm.

Page 252: To synonymy of *Lanius ludovicianus mearnsi* add:

Lanius ludovicianus mearnsi RIDGWAY, Proc. Biol. Soc. Wash., xvi, Sept. 30, 1903, 108 (San Clemente I., California; coll. U. S. Nat. Mus.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xxi, 1904, 416 (check list no. 622d).

Page 260: To citations of *Corvus corax* add:

HARTING, Proc. Zool. Soc. Lond., 1871, 112 (Beechy I., Barrow Straits; crit.).—FEILDEN, Ibis, 1877, 405 (Cape Lupton, lat. 81° 44' N.; Polaris Bay; Dobbin Bay; Smiths Sound).—ADAMS, Ibis, 1878, 426 (St. Michael, Alaska; habits).

Page 263: In citation of *Corvus cacalott* BONAPARTE, Proc. Zool. Soc. Lond., 1837, 115, instead of Mexico read Guatemala; crit.

Page 267: For *Corvus americanus americanus* Audubon read *Corvus brachyrhynchos brachyrhynchos* Brehm, and on page 268 insert the following references:

Corvus brachyrhynchos BREHM (C. L.), Beitr. zur Vögelkunde, ii, 1822, 56 (see Richmond, Proc. Biol. Soc. Wash., xvi, 1903, 125).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xxi, 1904, 413.

Page 269: After third line from top insert:

[*Corone*] *americana* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1882, 120.

Page 269: For *Corvus americanus pascuus* Coues read *Corvus brachyrhynchos pascuus* (Coues), and in synonymy, on page 270, insert:

Corvus brachyrhynchos pascuus AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xxi, July, 1904, 414.

Page 270: For *Corvus americanus hesperis* read *Corvus brachyrhynchos hesperis*.

Page 272: To citations of *Corvus americanus hesperis* add:

ANDERSON and GRINNELL (J.), Proc. Ac. Nat. Sci. Phila., 1903, 10 (n. California).

Page 272: For *Corvus americanus caurinus* read *Corvus brachyrhynchos caurinus*.

Page 273: To synonymy of *Corvus americanus caurinus* add:

[*Corone*] *caurina* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1882, 120 (Vancouver I.).

Page 275: To synonymy of *Corvus ossifragus* add:

[*Corone*] *ossifraga* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1882, 120.

Page 276: To synonymy of *Corvus mexicanus* add:

[*Corone*] *mexicana* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1882, 120 (Mazatlan).

Page 278: To synonymy of *Corvus nasicus* add:

[*Microcorax*] *nasicus* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1882, 120.

Page 279: To citation of *Corvus leucognaphalus* add:

TAYLOR, Ibis, 1864, 168 (Porto Rico; habits; iris bright red).

Page 279: To synonymy of *Corvus leucognaphalus* add:

Corax crucirostra LEDRU, Voy. Tenériffe, etc., ii, 1810, 204, in text (Porto Rico; coll. Paris Mus.).

Page 279: To citation of *Corvus leucognaphalus* under *C. l. erythrophthalmus* add:

CHRISTY, Ibis, 1897, 327 (Yuna R., Santo Domingo; habits).

Page 283: To citations of *Picicorvus columbianus* add:

Goss, Trans. Kansas Ac. Sci., xi, 1889, 61 (Mitchell Co., Kansas, 1 spec., Aug. 13, 1888).

Page 287, footnote: To synonymy add:

Pica pica pica Hartert, Vög. Palaëarkt. Fauna, i, Nov., 1903, 19 (monogr.).

Page 291: To synonymy add:

Pica pica hudsonius HARTERT, Vög. Palaëarkt. Fauna, i, Nov., 1903, 21 (crit.).

Page 292: To synonymy of *Pica nuttalli* add:

Pica pica nutalli HARTERT, Vög. Palaëarkt. Fauna, i, Nov., 1903, 22 (crit.).

Page 295: To citation of *Cyanurus bullocki* BONAPARTE add: Notes Orn. Coll. Delattre, 1854, 6.

Page 296: To synonymy of *Calocitta formosa formosa* add:

[*Calocitta*] *formosa* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1882, 118 (Mexico).

Page 305: To citations of *Cyanocorax affinis* add:

GOODE, Fifth and Sixth Ann. Rep. Curators Mus. Wesleyan Univ., 1877, 19 (Costa Rica).

Page 311: To citations of *Xanthura luxuosa* add:

SALVIN, Ibis, 1888, 265 (Cozumel I.; crit.).

Page 315: To citations of *Cyanolyca yucatanica* add:

SALVIN, Ibis, 1888, 265 (Meco and Mugeris islands, Yucatan).

Page 315: To citation of *Cyanocitta germana* SCLATER and SALVIN add, after Feb. 15: (pub. June 1).

Page 315: Add to synonymy:

[*Cyanolyca*] *yucatanica* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1882, 117.

Page 316: To synonymy add:

[*Cyanolyca*] *beecheyi* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1882, 117 ("Honduras").

Page 318: To synonymy of *Cissolopha melanocyanea* add:

[*Cyanolyca*] *melanocyanea* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1882, 117 ("Mexico").

Page 319: In the Key to the Species and Subspecies of *Cyanolyca*, change matter belonging to first *d* and *dd* to read as follows:

d. Pileum black, dark purplish blue, or greenish slate color; adults with a white or light blue band across anterior portion of crown and along lateral border of pileum; chest black.

e. Black purplish blue; black of chest changing gradually into purplish blue of breast, etc.; throat pale purplish blue or silvery white.

f. A band of light purplish blue across fore part of crown and thence backward to end of auricular region; posterior part of crown, occiput, and hindneck, black. (Highlands of Costa Rica, Chiriqui, and Veragua.)
Cyanolyca argentigula, adults (p. 319)

ff. No light purplish blue on pileum, which, together with hindneck, is dull purplish blue, like back, etc.

Cyanolyca argentigula, young (p. 319)

ee. Back dull greenish blue; black of chest abruptly defined against the dull greenish blue of breast, etc.; throat pure white.

f. White band along side of crown and occiput confluent (or nearly so) posteriorly with white throat-patch; crown, occiput, and hindneck black. (Mountains of Guerrero, southwestern Mexico.)

Cyanolyca mirabilis, adults (p. 746)

ff. White band along side of crown and occiput terminating at end of auricular region; crown, occiput, and hindneck dull greenish or bluish slate color (practically concolor with back).

Cyanolyca mirabilis, young (p. 746)

dd. Pileum grayish purplish blue, concolor with back; neither adults nor young with a white or light blue band across fore part or along side of crown; chest grayish purplish blue, slightly dusky next to the pale grayish blue throat-patch. (Southeastern Mexico.)

Cyanolyca nana (p. 330)

Page 320: Interpolate, after *Cyanolyca argentigula*:

CYANOLYCA MIRABILIS Nelson.

OMILTEME JAY.

Adults (sexes alike).—Head, neck, and chest black, abruptly defined posteriorly; a narrow and very sharply defined band of white across anterior part of crown, continued backward at extremities in a stripe along each side of crown and occiput, deflected downward immediately behind auricular region, across sides of neck, nearly or quite ^a to the large patch of pure white covering entire throat; rest of plumage uniform dull grayish greenish blue, ^b the under surface of remiges and rectrices slaty black, their shafts deep black; bill, legs, and feet black.

Young.—Similar to adults, but crown, occiput, and hindneck dull greenish or bluish slate color, only slightly darker than and practically concolor with the color of back, etc.; white stripe on side of crown and occiput not continued (at least not distinctly so) across side of neck; under parts of body slate color, more bluish on breast, the black of chest much narrower and less sharply defined posteriorly than in adults.

Adult male.—Length (skins), 138–147 (142); wing, 104.5–109 (107.2); tail, 109–116 (113.3); exposed culmen, 22–23.5 (22.8); depth of bill at nostrils, 9; tarsus, 32–33.5 (32.8); middle toe, 18. ^c

Adult female.—Length (skins), 120–135 (127.5); wing, 101–102 (101.5); tail, 105–109 (107); exposed culmen, 21; depth of bill at nostrils, 8; tarsus, 31; middle toe, 16.5–17 (16.7). ^d

Mountains of southwestern Mexico, in State of Guerrero (Omiteme).

Cyanolyca mirabilis NELSON, Proc. Biol. Soc. Wash., xvi, Nov. 30, 1903, 154 (Omiteme, Guerrero, s. w. Mexico; coll. U. S. Nat. Mus.).

^a Mr. Nelson informs me that in life and before skinning this stripe and the white throat-patch are really confluent; in the skins examined they appear not quite so.

^b The color decidedly darker and duller than the china blue of my Nomenclature of Colors.

^c Three specimens.

^d Two specimens.

Page 321: To synonymy of *Cyanolyca nana* add:

[*Garrulina*] *nana* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1882, 117.

Page 323: To synonymy of *Cyanolyca mitrata* add:

[*Cyanolyca*] *ornata* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1882, 117 (Mexico).

Page 323: To synonymy of genus *Aphelocoma* add:

Garrulina GRAY, Cat. Gen. and Subgen. Birds, 1855, 148 (ex Bonaparte, Ann. Sci. Nat., iv ser., i, no. 2, 1854, 113, *nomen nudum*). (Type, *Cyanocorax unicolor* Du Bus.)

Seiberocitta COUES, Key N. Am. Birds, 5th ed., i, 1903, 499. (Type, *Pica sieberii* Wagler.)

Page 326: Cancel last two paragraphs of Key to the Species and Subspecies of *Aphelocoma* and substitute the following:

- a. Color lighter blue (cobalt or cerulean). (*Aphelocoma unicolor*.)
- b. Smaller, with the blue of a cobalt hue; wing of adult male averaging 161.5, tail 153.5. (Southeastern Mexico, in States of Vera Cruz, Puebla, and Mexico.)
Aphelocoma unicolor unicolor (p. 344)
- bb. Larger, with the blue of a cerulean hue; wing of adult male averaging 167, tail 157.5. (Highlands of Chiapas and Guatemala.)
Aphelocoma unicolor caelestis (p. 345)
- aa. Color darker blue (dark smalt or cyanine). (Wing of adult male averaging 164.8, tail 168.7.) (Southwestern Mexico, in mountains of Guerrero.)
Aphelocoma guerrensis (p. 749)

Page 329: To citation of *Aphelocoma californica* BONAPARTE, Notes Orn. Coll. Delattre, 1854, add: p. 6.

Page 344: To synonymy of *Aphelocoma unicolor unicolor* add:

[*Garrulina*] *unicolor* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1882, 117 (Mexico).

Page 345: To synonymy of *Aphelocoma unicolor caelestis* add:

Aphelocoma unicolor caelestis RIDGWAY, Proc. Biol. Soc. Wash., xvi, Sept. 30, 1903, 108 (San Cristobal, Chiapas; coll. U. S. Nat. Mus.).

Page 345: A recently discovered species, allied to the *A. unicolor*, is

APHELOCOMA GUERRERENSIS Nelson.

GUERRERO JAY.

Similar to *A. unicolor unicolor*, but much larger and darker.

Adults (sexes alike).—Uniform glossy purplish grayish blue,^a the remiges and rectrices with black shafts, their under surface slaty black; bill, legs, and feet black.

Adult male.—Length (skins), 332–353 (345); wing, 158–168 (164.8); tail, 160–173 (168.7); exposed culmen, 29–31 (30); tarsus, 40–42.5 (41.4); middle toe, 23.5–25 (24.4).^b

^aThe color can not be nearly matched by any shown in my Nomenclature of Colors; it comes nearest to cyanine blue, but in the best light appears lighter and more violet.

^bSix specimens.

Adult female.—Length (skins), 334–350 (342); wing, 166; tail, 168–169 (168.5); exposed culmen, 28–29 (28.5); tarsus, 41.5–42 (41.7); middle toe, 23–23.5 (23.2).^a

Mountains of southwestern Mexico, in State of Guerrero (Omiteme).

Aphelocoma guerrensis NELSON, Proc. Biol. Soc. Wash., xvi, Nov. 30, 1903, 154 (Omiteme, Guerrero; coll. U. S. Nat. Mus.).

Page 345: To synonymy of genus *Cyanocitta* add:

Stellerocitta COUES, Key N. Am. Birds, 5th ed., i, 1903, 495. (Type, *Corvus stelleri* Gmelin.)

In *The Condor*, iv, 1902, 41–44, there is a paper by Mr. Walter K. Fisher on the North American forms of *Cyanocitta stelleri* (except *C. s. diademata*), accompanied by a map showing clearly the geographic range of each form together with areas of intergradation. The reader is referred to this paper, not only for special information on the species and its geographic variations but also as a model of the very best type of technical ornithology.

Page 353: Citation of *Cyanocitta stelleri litoralis* MAYNARD to be corrected as follows:

Cyanocitta stelleri litoralis MAYNARD, Ornithologist and Oologist, xiv, no. 4, Apr., 1889, 59 (Vancouver I., British Columbia; coll. F. B. Webster).

Page 355: To citations of *Cyanocitta stelleri carbonacea* add:

ANDREWS and GRINNELL (J.), Proc. Ac. Nat. Sci. Phila., 1903, 9 (Siskiyou Mts., California; habits; crit.).

Page 357: To citation of *Cyanura stelleri* under *Cyanocitta stelleri annectens* add:

BLAKISTON, Ibis, 1862, 8 (Rocky Mts., n. w. Canada).

Page 362: To synonymy of *Cyanocitta stelleri azteca* add:

[*Lophocorax*] *diadematus* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1882, 116 (Mexico).

Page 364: To synonymy of *Cyanocitta stelleri coronata* add:

[*Cyanocitta*] *galeata* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1882, 116 ("Bogota").

Page 364: For genus *Perisoreus* BONAPARTE read *Cractes* BILLBERG, and insert the following reference:

Cractes BILLBERG, Synopt. Faunæ Scand., i, pt. ii, 1828, 14. (Type, *Corvus infaustus* Linnæus.)

Page 366: For *Perisoreus canadensis canadensis* read *Cractes canadensis canadensis*.

Page 368: For *Perisoreus canadensis nigricapillus* Ridgway read *Cractes canadensis nigricapillus* (Ridgway).

^a Two specimens.

Page 369: For *Perisoreus canadensis fumifrons* Ridgway read *Cractes canadensis fumifrons* (Ridgway).

Page 370: For *Perisoreus canadensis capitalis* Baird read *Cractes canadensis capitalis* (Baird).

Page 372: For *Perisoreus obscurus obscurus* read *Cractes obscurus obscurus*.

Page 373: For *Perisoreus obscurus griseus* Ridgway read *Cractes obscurus griseus* (Ridgway).

Page 383: To citations of *Parus bicolor* add:

NEHRLING, Our Native Birds, i, 1893, 106, pl. 5, fig. 2.

Page 384: To synonymy add:

[*Baeolophus*] *bicolor* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1882, 56 (Georgia).

Page 387: To citations of *Parus atricristatus* add:

NEHRLING, Our Native Birds, i, 1893, 108.

Page 388: To citations of *Parus inornatus* add:

NEHRLING, Our Native Birds, i, 1893, 111, part.

Page 389: To synonymy of *Baeolophus inornatus restrictus* add:

Baeolophus inornatus restrictus RIDGWAY, Proc. Biol. Soc. Wash., xvi, Sept. 30, 1903, 109 (Oakland, California; coll. U. S. Nat. Mus.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xxi, 1904, 418 (check list no. 733c).

Page 390: To synonymy of *Baeolophus inornatus murinus* add:

Baeolophus inornatus murinus RIDGWAY, Proc. Biol. Soc. Wash., xvi, Sept. 30, 1903, 109 (Nachoguero Valley, n. Lower California; coll. U. S. Nat. Mus.).

Page 391: To synonymy of *Baeolophus inornatus griseus* add:

Parus inornatus (not of Gambel) NEHRLING, Our Native Birds, i, 1893, 111, part (chiefly).

Page 393: To synonymy of *Baeolophus wollweberi wollweberi* add:

[*Lophophanes*] *galeatus* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1882, 55 (Mexico).

Page 394: To citations of *Parus wollweberi* add:

NEHRLING, Our Native Birds, i, 1893, 113.

Page 399: To citations of *Parus atricapillus* add:

NEHRLING, Our Native Birds, i, 1893, 114, pl. 21, fig. 2.

Page 399: To synonymy add:

[*Poecile*] *atricapilla* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1882, 56.

Page 402: To citation of *Parus atricapillus turneri* add:

AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xxi, 1904, 418 (check list no. 735c).

Page 405: To citations of *Parus carolinensis* add:

NEHRLING, Our Native Birds, i, 1893, 116.

Page 405: To synonymy add:

[*Poecile*] *carolinensis* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1882, 56 (Illinois).

Page 408: To synonymy of *Parus sclateri* add:

[*Poecile*] *meridionalis* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1882, 56 (La Parada, Oaxaca).

Page 410: To citations of *Parus gambeli* add:

NEHRLING, Our Native Birds, i, 1893, 113.

Page 417: To citation of *Parus rufescens* TOWNSEND [etc.] add: Narrative, 1839, 337.

Page 418: Between second and third lines, from top, insert:

Parus rufescens rufescens ANDERSON and GRINNELL (J.), Proc. Ac. Nat. Sci. Phila., Jan. 17, 1903, 13 (Siskiyou Mts., n. California; crit.).

Page 422: To citations of *Auriparus flaviceps* add:

NEHRLING, Our Native Birds, i, 1893, 122, pl. 32, fig. 4.

Page 428: To synonymy of *Psaltriparus melanotis melanotis* add:

[*Psaltrites*] *melanotis* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1882, 55 (Capulacapa; La Parada, Oaxaca).

Page 430: To citation of *Psaltriparus melanotis lloydi* add:

AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xxi, 1904, 419.

Page 432: To citations of *Psaltriparus plumbeus* add:

NEHRLING, Our Native Birds, i, 1893, 121.

Page 433: To citation of *Parus minimus* TOWNSEND add: Narrative, 1839, 337.

Page 433: To citations of *Psaltriparus minimus* add:

NEHRLING, Our Native Birds, i, 1893, 119, pl. 8.—ANDERSON and GRINNELL (J.), Proc. Ac. Nat. Sci. Phila., 1903, 13 (Siskiyou Mts., n. California; crit.).

Page 434: To synonymy of *Psaltriparus minimus minimus* add:

[*Psaltrites*] *minimus* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1882, 55.

Page 435: To synonymy of *Psaltriparus minimus saturatus* add:

Psaltriparus minimus saturatus RIDGWAY, Proc. Biol. Soc. Wash., xvi, Sept. 30, 1903, 109 (Mount Vernon, Washington; coll. U. S. Nat. Mus.).

Page 443: To citations of *Sitta carolinensis* add:

NEHRLING, Our Native Birds, i, 1893, 125, pl. 21, fig. 5.

Page 453: To citations of *Sitta canadensis* add:

NEHRLING, Our Native Birds, i, 1893, 127.

Page 455: To citations of *Sitta pusilla* add:

NEHRLING, Our Native Birds, i, 1893, 128.

Page 458: To citations of *Sitta pygmaea* add:

NEHRING, Our Native Birds, i, 1893, 129.

Page 466: To citations of *Certhia familiaris americana* add:

NEHRING, Our Native Birds, i, 1893, 130.

Page 472: An earlier reference to *Certhia mexicana* is: ? *Certhia mexicana* GLOGER, Abänd. der Vögel, 1833, 154, in text (Mexico).

Page 472: To citations of *Certhia mexicana* add:

(?) SALVIN and GODMAN, Ibis., 1892, 325 (Matagalpa, Nicaragua; crit.).

The Nicaraguan bird is most likely a distinct form, however.

Pages 483, 484: To citations of *Cistothorus stellaris* add:

COUES, Bull. U. S. Geol. and Geog. Surv., iv, 1874, 555 (Pembina and Mouse R. North Dakota).—LANGILLE, Our Birds, etc., 1884, 284 (habits; notes).—KNIGHT, Bull. Univ. Wyom. Agric. Exp. Sta., no. 55, 1902, 154 (Cheyenne, Wyoming; 1 spec.).

Page 486: Citation of *Telmatodytes* CABANIS, Mus. Hein., etc., to be corrected as follows:

Telmatodytes CABANIS, Mus. Hein., i, 1850, 78, footnote. (Type, "*Thryoth. arundinaceus* Vieill.," i. e. *Thryothorus arundineus* Vieillot, = *Certhia palustris* Wilson).

Page 491: To citations of *Telmatodytes palustris* add:

LANGILLE, Our Birds, etc., 1884, 392 (habits).

Page 494: To citation of *Telmatodytes palustris iliacus* add:

AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xxi, 1904, 418 (check list no. 725d).

Page 495: To citations of *Cistothorus palustris* add:

KNIGHT, Bull. Univ. Wyom. Agric. Exp. Sta., no. 55, 1902, 154 (Lake Como and Yellowstone R., Wyoming).

Page 498: to synonymy add:

Telmatodytes palustris marianæ AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xxi, 1904, 418.

Page 499: To the range of *Telmatodytes palustris thryophilus* add: Northwestern Florida (Choctawatchee Bay, east of Pensacola, April 18).

Page 503, end of fourth paragraph: For *brunneicapillus* read *brunneicapillus*.

Page 519: In a paper entitled The Status of the Southern California Cactus Wren, published several months after the matter on *Heleodytes* in the present volume was written, in The Condor, vi, 1904, pp. 17-19, Mr. Harry S. Swarth assigns all the Cactus Wrens from southern California to *Heleodytes brunneicapillus* or *H. b. couesi*. His conclusion that the alleged subspecies *H. b. anthonyi* is untenable is, in my opinion correct, the same conclusion having been reached by

me (see p. 522, footnote and p. 524 of the present volume); but he is surely in error in doubting the validity of *H. b. bryanti* and I think also in claiming that only one form occurs in southern California. Mr. Swarth's California material apparently did not contain a specimen from the coast district (or any other portion ?) of San Diego County, to which *H. b. bryanti* (not typical, however) is restricted in its California range.

Page 524: To citations of *Heleodytes brunneicapillus couesi* add:

STONE and REHN, Proc. Ac. Nat. Sci. Phila., 1903, 29 (Otero Co., New Mexico, etc.).—SWARTH, Condor, vi, 1904, 19, in text (s. California, Arizona, etc.; crit.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xxi, 1904, 417.

Page 529, footnote: To citations of *Thryothorus fasciatiiventris* add:

RIDGWAY, Proc. U. S. Nat. Mus., xiv, 1891, 522 (Bogota, Colombia; description of type).

Page 546: To citations of *Thryothorus ludovicianus miamensis* add:

BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, special ed., i, plate facing p. 142.

Page 558: To citation of *Thryomanes bewickii leucogaster* add:

STONE and REHN, Proc. Ac. Nat. Sci. Phila., 1903, 29 (Otero Co., New Mexico).

Page 694: Add the following, inadvertently omitted:

KEY TO THE GENERA OF SYLVIIDÆ.

- a. Acrotarsium booted; tail much shorter than wings, even or emarginate, the rectrices subacuminate at tip; color of upper parts more or less olive or olive-green, the tail without black. (*Phylloscopinæ*.)
- b. Nostrils exposed; exposed culmen equal to or longer than middle toe without claw; tarsus decidedly less than one-third as long as wing; outermost (tenth) primary minute, not more (sometimes much less) than one-third as long as ninth; adult males without a red or orange crown-patch.
 - Acanthopneuste* (p. 694)
 - bb. Nostrils concealed by antrorse latero-frontal plumules or by a single well-developed small feather; exposed culmen much shorter than middle toe without claw; tarsus about one-third as long as wing; outermost (tenth) primary well developed, one-third or more as long as ninth; adult males with a red, orange, or orange-yellow crown-patch *Regulus* (p. 698)
 - aa. Acrotarsium distinctly scutellate; tail about as long as wing (sometimes longer), much rounded, the rectrices broadly rounded at tip; color of upper parts bluish gray or grayish blue (rarely brownish, but not olive, in young), the tail partly black and white; pileum glossy black in adult males of some species (*Polioptilinæ*.) *Polioptila* (p. 710)

Page 697: To synonymy add:

Acanthopneuste borealis AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, July, 1904, 419, part.

Page 700, end of first paragraph: For *curvierii* read *cuvierii*.

Page 710: To citation of *Regulus calendula obscurus* add:

AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xxi, 1904, 419.

INDEX.

[The black-faced letters indicate family generic or specific headings.]

A.	Page.		Page.
Acadian Chickadee.....	415	<i>affinis</i> , <i>Heleodytes</i>	521
<i>Acanthiparus</i>	424, 425	<i>brunneicapillus</i>	503,
<i>niveogularis</i>	424	519, 520, 521	
<i>Acanthopneuste</i>	694, 695, 754	<i>Poecila</i>	396
<i>borealis</i>	696, 754	<i>agilis</i> , <i>Lanius</i>	132, 146, 147
<i>borealis</i>	697	<i>Parus carolinensis</i>	406
<i>kennicotti</i>	696	(<i>Poecile</i>) <i>carolinensis</i>	406
<i>Acapulco Jay</i>	314	<i>Penthestes carolinensis</i>	395, 406
<i>Accentor</i>	684	<i>Phyllomanes</i>	132
<i>acentetus</i> , <i>Microcerculus</i>	670	<i>Thamnophilus</i>	132
<i>Acredula</i>	425	<i>Vireo</i>	146
<i>melanotis</i>	428	<i>chivi</i>	147
<i>minima</i>	432	<i>Vireosylva chivi</i>	132, 147
<i>plumbea</i>	432	<i>Vireosylva</i>	132, 133
<i>Acropis</i>	76	<i>Agrodroma</i>	10
<i>aculeata</i> , <i>Sitta</i>	445, 446, 447, 449	<i>spraguei</i>	21
<i>carolinensis</i> ..	440, 444, 446, 448, 449	<i>alasensis</i> , <i>Anorthura</i>	603, 604
<i>β</i>	446, 448	<i>troglodytes</i>	604, 605
<i>var</i> ..	446, 447, 448, 449	<i>var</i>	604
(<i>vel.</i>)	449	<i>var. hyemalis</i>	
<i>acuticauda</i> , <i>Hylophilus</i>	216	<i>c</i> ..	604, 605
<i>Pachysylvia</i>	216, 743	<i>Budytes flavus</i>	8, 737
<i>aedon</i> , <i>Hylemathrus</i>	581	<i>Olbiorchilus</i>	597, 602, 604
<i>Troglodytes</i>	569, 580	<i>Parus cinctus</i>	412
<i>aedon</i> , <i>Troglodytes</i>	571, 579, 581, 583, 587	<i>Penthestes cinctus</i>	396, 411
<i>aedon</i>	571, 579, 581, 588	<i>Poecila oblecta</i>	412
<i>a</i>	581	<i>Troglodytes</i>	602, 603, 604
<i>aedon</i> , <i>Troglodytes</i>	580, 583, 584	<i>hyemalis var</i>	604
<i>aedon var</i>	581	<i>parvulus</i>	604
<i>Ægithalinæ</i>	377	<i>var</i>	604
<i>Ægithaliscus</i>	425	<i>Alaska Jay</i>	369
<i>melanotis</i>	427	<i>Alaskan Chickadee</i>	411
<i>Ægithalopsis</i>	424	<i>Willow Warbler</i>	696
<i>Ægithalos</i>	376, 377	<i>Yellow Wagtail</i>	8
<i>Ægithalos</i>	375, 420, 425	<i>Alauda arborea</i>	10
<i>flaviceps</i>	421, 423	<i>bonariensis</i>	22
<i>lloydi</i>	430	<i>campestris</i>	10
<i>melanotis iulus</i>	428	<i>ludoviciana</i>	14
<i>minimus californicus</i>	434, 436	<i>pennsylvanica</i>	14
<i>grindæ</i>	436	<i>pratensis</i>	10, 17, 19
<i>minimus</i>	434, 435	<i>rubra</i>	15
<i>plumbeus</i>	432	<i>rufa</i>	11, 15, 22, 23
<i>santaritæ</i>	430	<i>sepiaria</i>	19
<i>Ægithalus</i>	420	<i>spinoletta</i>	10, 15
<i>æqualis</i> , <i>Stelgidopteryx ruficollis</i>	651	<i>spraguei</i>	11, 21
<i>æquatorialis</i> , <i>Cistothorus</i>	482	<i>trivialis</i>	10
<i>affinis</i> , <i>Campylorhynchus</i>	520, 521	<i>alba</i> , <i>Motacilla</i>	2, 3, 4, 5, 6
<i>Corvus</i>	256	<i>albatus</i> , <i>Vireo pusillus</i>	210
<i>Cyanocorax</i>	303, 305	<i>albeola</i> , <i>Motacilla</i>	5
<i>affinis</i>	304		

	Page.		Page.
albescens, <i>Certhia familiaris</i>	463, 472, 473	americana, <i>Certhia familiaris</i> β	467, 468, 469
<i>mexicana</i>	470	<i>Corone</i>	269, 271, 276
<i>Parus</i>	401	<i>Hirundo</i>	50, 76, 84, 85
<i>septentrionalis</i> var	401	<i>riparia</i>	75
albibrunneus, <i>Campylorhynchus</i>	504	<i>Luscinia</i>	139
albicollis, <i>Hydrobata</i>	676	<i>Petrochelidon</i>	50
albifrons, <i>Catherpes mexicanus</i>	655, 657	<i>Troglodytes</i>	581, 582
<i>Certhia</i>	657	americanus, <i>Cinclus</i>	641
<i>Troglodytes</i>	657*	<i>Corone</i>	269
albigula, <i>Hirundo</i>	77	<i>Corvus</i> .. 258, 268, 270, 271, 276, 277, 278	
albigularis, <i>Cyphorhinus</i>	532	<i>americanus</i> .. 258, 267, 269, 270	
<i>Pheugopedius fasciato-ventris</i>	529,	<i>a</i>	269
531		var.	268
<i>Thryothorus</i>	532	<i>Icthyophaga</i>	582
<i>fasciato-ventris</i> ..	532	<i>Lanius</i>	243
albilinea, <i>Hirundo</i>	91, 92	<i>borealis</i>	240
<i>Iridoprocne</i>	85, 86, 87, 90	<i>Regulus</i>	702
<i>Petrochelidon</i>	91	<i>Troglodytes</i>	581, 582, 584
<i>Tachycineta</i>	92	Amnochelidon	44
albiflora, <i>Polioptila</i>	726, 727	Ampelidæ	103
albiloris, <i>Polioptila</i>	713, 714, 716, 725, 726, 727	Ampelis	104, 113
albinucha, <i>Thryomanes</i>	549, 551	<i>americana</i>	112
<i>Thryothorus</i>	552	<i>carolinensis</i>	112
<i>Troglodytes</i>	552	<i>cedrorum</i>	105, 106, 109, 111, 112
albipectus, <i>Thryothorus</i>	638-641	<i>garrula</i>	108
albiiventris, <i>Hirundo</i>	40, 86, 87	<i>garrulus</i>	104, 105, 106, 109, 110, 111
<i>Iridoprocne</i>	86	<i>β</i>	111
<i>Pica</i>	287	<i>japonica</i>	105
<i>Polioptila</i>	714, 716, 729	<i>japonicus</i>	105
<i>Tachycineta</i>	87	<i>lientericus</i>	109
albobrunneus, <i>Campylorhynchus</i>	504	<i>phænicoptera</i>	105
<i>Donacobius</i>	504	<i>pinetorum</i>	112
<i>Heleodytes</i>	501, 503, 504	amurensis, <i>Motacilla</i>	3
albo-brunneus, <i>Heleodytes</i>	504	anachoreta, <i>Henicorhina</i>	609
algeriensis, <i>Lanius</i>	237	<i>guttata</i>	610
alleni, <i>Vireo</i>	192	<i>hilaris</i>	609
<i>crassirostris</i>	173, 192	andicola, <i>Orochelidon</i>	27
Allen's <i>Vireo</i>	192	annectens, <i>Cyanocitta stelleri</i>	347, 347, 358
Alopocheilidon	26, 738	<i>Cyanura stelleri</i> var	358
alticeps, <i>Anthus</i>	20	annexus, <i>Baeolophus wollweberi</i>	381, 393
alticola, <i>Certhia familiaris</i>	463, 471, 472, 473	<i>Parus</i>	394
<i>Lanivireo solitarius</i>	163, 169, 170	Anomalocorax	256
<i>Vireo solitarius</i>	170	Anorthura	595, 599
alticolus, <i>Heleodytes</i>	514	<i>alascensis</i>	603, 604
altiloqua, <i>Muscicapa</i>	139, 142	<i>hiemalis</i>	599-601
<i>Vireosylva</i>	142	<i>helleri</i>	602
<i>Vireosylva</i>	139, 140, 142	<i>pacificæ</i>	601
altiloquus, <i>Vireo</i>	139	<i>hyemalis</i>	599
(<i>Vireosylva</i>)	142	<i>meligera</i>	605
amauronota, <i>Vireosylva</i>	159, 161	<i>pacificæ</i>	601
<i>amauronota</i>	133,	<i>parvulus</i> var. <i>hyemalis</i>	601
158, 159		<i>troglodytes</i>	595
amauronotus, <i>Vireo</i>	159	<i>alascensis</i>	604, 605
amaurophrys, <i>Cyclorhiza</i>	229	var. <i>alascensis</i>	604
Amblycorax	256	<i>hiemalis</i>	599
American Barn Swallow	80	<i>hyemalis</i>	599, 601
<i>Crow</i>	267	var. <i>hyemalis</i>	599, 600
<i>Dipper</i>	679	var. <i>hyemalis</i> b.	
<i>Magpie</i>	287	<i>hyemalis</i>	599, 601
<i>Pipit</i>	11	var. <i>hyemalis</i> c.	
americana, <i>Ampelis</i>	112	<i>alascensis</i>	604, 605
<i>Bombycilla</i>	112	<i>pacificus</i>	601
<i>Cecropis</i>	84	anteocularis, <i>Polioptila</i>	714, 715
<i>Certhia</i>	466, 467, 469, 470	<i>nigriceps</i>	712, 714
<i>familiaris</i>	463, 464, 466	Anthes	2
var.	466, 467, 469, 470	anthonyi, <i>Heleodytes brunneicapillus</i>	524

	Page.
anthonyi , <i>Lanius ludovicianus</i>	236
Anthony's Vireo	196
Anthoscopus	424
<i>flaviceps flaviceps</i>	422
<i>lamprocephalus</i>	423
Anthus	2, 10
<i>alticeps</i>	20
<i>aquaticus</i>	10-15
<i>bogotensis</i>	11
<i>cecillii</i>	17
<i>cervinus</i>	11, 15, 17
<i>var. rufogularis</i>	17
<i>communis</i>	20
<i>danicus</i>	20
<i>desertorum</i>	20
<i>hypogæus</i>	15
<i>intermedius</i>	20
<i>japonicus</i>	18
<i>lichtensteini</i>	20
<i>lineiventris</i>	10
<i>ludoviciana</i>	15
<i>ludovicianus</i>	14, 15
<i>lutescens</i>	22
<i>montanellus</i>	20
<i>musculus</i>	20
<i>nattereri</i>	11
<i>(Neocorys) spraguii</i>	21
<i>(Notiocorys) parvus</i>	23
<i>palustris</i>	20
<i>parvus</i>	11, 22, 23
<i>pelopus</i>	18
<i>pensilvanicus</i>	11, 14
<i>pennsylvanicus</i>	14
<i>pennsylvanicus</i>	14
<i>pennsylvanicus</i>	14
<i>peruvianus</i>	22
<i>pipiens</i>	15
<i>pratensis</i>	11, 15, 17, 18, 19
<i>japonicus</i>	18
<i>nubicus</i>	17
<i>rufogularis</i>	17
<i>pratorum</i>	20
<i>reinhardtii</i>	15
<i>richardi</i>	10
<i>rubens</i>	15
<i>rufescens</i>	10
<i>ruficollis</i>	18
<i>rufogularis</i>	17
<i>rufosuperciliaris</i>	18
<i>rufus</i>	23
<i>parvus</i>	23
<i>sepiarius</i>	19
<i>spinoletta</i>	15
<i>var. ludovicianus</i>	15
<i>spipoletta</i>	14
<i>spraguei</i>	21
<i>spraguei</i>	11, 20, 21, 22
<i>stagnatilis</i>	20
<i>tenuirostris</i>	20
<i>thermophilus</i>	18
<i>tristis</i>	20
<i>virescens</i>	20
Antrochelidon	44
Aphelocoma	318, 323, 324, 346
<i>californica</i>	329, 330, 331, 336
<i>californica</i>	324,
327, 330, 331	

	Page.
Aphelocoma californica hypoleuca	324, 331
<i>immanis</i>	330
<i>immanus</i>	328
<i>obscura</i>	324,
330, 331, 333	
<i>var. woodhousei d.</i>	
<i>sumichrasti</i>	336
<i>couchi</i>	343
<i>cyanea</i>	324, 326, 327
<i>cyanotis</i>	324, 335, 336, 337
<i>floridana</i>	327
<i>californica</i>	329, 330, 331
<i>var. californica</i>	329, 330
<i>woodhousei</i>	334
<i>var. woodhousei</i>	331
<i>var. woodhousei a.</i>	
<i>floridana</i>	327
<i>var. woodhousei b.</i>	
<i>woodhousei</i>	334
<i>var. woodhousei c.</i>	
<i>californica</i>	329, 330
<i>woodhousei</i>	334
<i>gracilis</i>	342
<i>grisea</i>	325, 337, 338
<i>guerrensis</i>	749, 750
<i>insularis</i>	324, 331, 332
<i>nana</i>	321
<i>sieberi</i>	339
<i>siebertii</i>	325, 339, 343
<i>arizonæ</i>	325, 340, 341
<i>collinæ</i>	325, 339, 340
<i>couchi</i>	325, 342, 343
<i>potosina</i>	325, 340, 341, 342
<i>siebertii</i>	325, 338, 339, 340, 343
<i>wollweberi</i>	325, 340, 341, 342
<i>sordida</i>	339, 341
<i>arizonæ</i>	341
<i>subsp. a. Aphelocoma</i>	
<i>arizonæ</i>	341
<i>sumichrasti</i>	325, 335, 336, 337
<i>texana</i>	325, 337
<i>ultramarina</i>	325, 339, 341, 343, 344
<i>arizonæ</i>	341
<i>var. arizonæ</i>	347
<i>couchi</i>	343
<i>couchii</i>	343
<i>subsp. a. Aphelo-</i>	
<i>coma couchi</i>	343
<i>unicolor</i>	326, 339, 344, 345, 749
<i>coelestis</i>	326, 345, 749
<i>unicolor</i>	326, 344, 345, 749
<i>woodhousei</i>	334, 335, 337
<i>woodhousei</i>	324, 333, 335, 336, 337
<i>woodhousei</i>	334
approximans , <i>Vireo</i>	192
<i>crassirostris</i>	178, 192
arizonæ , <i>Cyanocitta sordida</i> <i>var.</i>	341
aquaticus , <i>Anthus</i>	10, 15
<i>Cinclus</i>	676
Aquatilis	676
arborea , <i>Alauda</i>	10
ardesiaca , <i>Hydrobata</i>	682
ardesiaceus , <i>Lanius</i>	243
ardesiacus , <i>Cinclus</i>	677, 681, 682
<i>mexicanus</i> <i>var.</i>	682
ardosiaceus , <i>Lanius ludovicianus</i>	242
argentigula , <i>Cyanocitta</i>	319

	Page.		Page.
argentigula, <i>Cyanocorax</i>	320	azteca <i>Cyanocitta stelleri</i> ...	347, 361, 362, 363, 364
<i>Cyanolyca</i>	319, 320, 747	aztecus, <i>Regulus satrapa</i>	704
ariel, <i>Collocalia</i>	44	<i>Troglodytes</i>	586
Arizona Jay	340	aëdon	586
Vireo	207	aëdon var.	585, 586
Arizona, <i>Aphelocoma sieberi</i>	341	Azure-hooded Jay	322
sieberi	325, 340, 341	azurea, <i>Calocitta formosa</i>	293, 296, 298
sordida	341	azureus, <i>Corvus</i>	304, 339
ultramarina	341		
var.	341	B.	
<i>Cyanocitta ultramarina</i> , var.	341	<i>Baculophus</i>	380
Vireo bellii	180, 207, 208, 743	badia, <i>Hirundo</i>	77
armillata, <i>Cyanolyca</i>	318	<i>Bæolophus</i>	376, 379, 380, 387, 394, 419
armillatus, <i>Cyanocorax</i>	318	atricristatus	381, 387
Arremon palmarum	127	atricristatus ..	381, 384, 386
Artamida	233	sennetti	381, 386
arundinaceus, <i>Telmatorhynchus</i>	491	bicolor	380, 381, 384, 386, 387, 751
<i>Thryothorus</i>	545	texensis	386
<i>Troglodytes</i>	491, 539, 545	inornatus	380, 381
arundineus, <i>Thryothorus</i>	491, 753	cineraceus	381, 391
atripennis, Vireo	139	griseus	381, 389, 390, 391
<i>Vireosylvia</i>	139	inornatus	381, 387, 389
Ashy Titmouse	391	murinus ..	381, 389, 390, 751
Wren	686	restrictus	381, 389, 751
ater, <i>Periparus</i>	379	wollweberi	380
atkinsi, <i>Sitta carolinensis</i>	440, 444	annexus	381, 388
atricapilla, <i>Culicivora</i>	715-733, 735	wollweberi ..	381, 382, 393
<i>Poecile</i>	399, 751	Bahama Gnatcatcher	723
Vireo	182	Swallow	99
atricapillus, <i>Parus</i>	378, 398, 399, 401, 402, 403, 405	bairdi, <i>Lanius</i>	237
atricapillus var.	399	<i>Poliophtila</i>	713, 716, 726
(<i>Poecile</i>) atricapillus ..	399	<i>Thryomanes bewickii</i>	550, 559, 560
var. septentrionalis	401	<i>Thryothorus</i>	556-563
<i>Penthestes</i>	395	bewicki	562
atricapillus	395,	bewickii	557, 563
397, 398, 399, 402, 403		Vireo	177, 180, 181
<i>Poecila</i>	399	bairdii, <i>Thryothorus bewickii</i> ...	557, 558, 560, 561
<i>Poecile</i>	399	Baird's Gnatcatcher	729
Vireo	177, 181, 182	Vireo	180
atricristatus, <i>Bæolophus</i>	381, 387	Wren	559
atricristatus ..	381, 384, 386	bambula, <i>Cyphorhinus</i>	670
<i>Lophophanes</i>	385, 387	<i>Formicarius</i>	670
<i>Parus</i>	385, 387	<i>Turdus</i>	665
atrocristatus, <i>Lophophanes</i>	386, 387	Banded Cactus Wren	610
<i>Parus</i> (<i>Bæolophus</i>)	387	Banded Wren, Deppé's	631
atrogularis, <i>Pheugopedius</i>	528, 530, 531	Nicaraguan	631
<i>Thryothorus</i>	531	<i>Sceloporus</i>	629
<i>Troglodytes</i>	531	bangsi, <i>Henicorhina hiliaris</i>	610
Atticora	25, 27, 45	Bank Swallow	73
cyanoleuca	69, 71	barbadense, <i>Vireosylva calidris</i>	141
montana	72	var.	141
var. montana	72	barbadensis, <i>Vireosylva calidris</i>	131,
hemipyga	69	138, 140, 141, 143	
patagonica	69	Barbados Vireo	140
pilcata	66	barbatula, Vireo	143
tibialis	68	altioqua	139
Attu Wren	604	calidris	139, 140, 142, 143
aurantifrons, <i>Hylophilus</i>	215, 216, 220	calidris β	140
<i>Pachysylvia</i>	215, 744	<i>Vireosylva calidris</i>	131, 141
aurantifrons ..	215, 220	<i>Vireosylva calidris</i>	142
Auriparus	375, 376, 378, 379, 419, 420	barbatulus, <i>Phyllomanes</i>	142
flaviceps	422, 423	Vireo altioquus var.	143
flaviceps	420, 422	calidris	143
lamprocephalus ..	421, 422, 423	<i>Vireosylva calidris</i> , var.	142
Aztec Jay	361	barlowi, <i>Parus</i> (<i>Poecile</i>) rufescens ..	419
azteca, <i>Cyanocitta diademata</i>	359	rufescens	419

	Page.		Page.
<i>barlowi</i> , <i>Penthestes rufescens</i>	397, 418	<i>bicolor</i> , <i>Parus</i>	380, 383, 391
<i>Barlow's Chickadee</i>	418	(<i>Baeolophus</i>) <i>bicolor</i>	384
<i>Barn Swallow</i> , American	80	<i>bicolor</i>	383
<i>Kamchatkan</i>	84	<i>Petrochelidon</i>	90
<i>bartramii</i> , <i>Vireo</i>	132	<i>Tachycineta</i>	89, 90
<i>Bay Wren</i>	624	<i>Tachycinetes</i>	90
<i>beachii</i> , <i>Cyanocitta</i>	315, 316	<i>billineata</i> , <i>Culicivora</i>	726, 727, 728, 729
<i>beani</i> , <i>Troglodytes</i>	570, 573, 574	<i>Polioptila</i>	713, 716, 726, 727, 728, 729
<i>beecheii</i> , <i>Cissolopha</i>	312, 313, 316	<i>Black-bellied Wren</i>	533
<i>Cissolopha</i>	316	<i>Panama</i>	531
<i>Corvus</i> (<i>Pica</i>)	315	-capped <i>Vireo</i>	181
<i>Cyanocitta</i>	316	-crested <i>Titmouee</i>	384
<i>Cyanurus</i>	316	-eared <i>Bush-Tit</i>	426
<i>Pica</i>	315, 316	-headed <i>Jay</i>	357
<i>Xanthura</i>	316	-tailed <i>Cactus Wren</i>	506
<i>beecheyi</i> , <i>Cissolopha</i>	316	-tailed <i>Gnatcatcher</i>	734
<i>Cyanocitta</i>	316	-throated <i>Wren</i>	530
<i>Cyanocorax</i>	316	-whiskered <i>Vireo</i>	141
<i>Cyanolyca</i>	316, 747	<i>blakistoni</i> , <i>Motacilla</i>	3
<i>beecheyi</i> , <i>Cyanocitta</i>	316	<i>Blue-and-white Swallow</i>	69
<i>Pica</i>	316	<i>Blue-cheeked Jay</i>	335
<i>Beechey's Jay</i>	316	-crested <i>Jay</i>	363
<i>beecheii</i> , <i>Cyanolyca</i>	316	-gray <i>Gnatcatcher</i>	716
<i>behringianus</i> , <i>Corvus corax</i>	257	<i>Jay</i>	337
<i>Belding's Jay</i>	330	<i>Jay</i>	347
<i>Belize Vireo</i>	134	<i>Florida</i>	350
<i>belli</i> , <i>Vireo</i>	206, 207, 208	<i>bogotensis</i> , <i>Anthus</i>	11
<i>bellii</i> , <i>Vireo</i>	176, 179, 206, 207, 208	<i>Vireo</i>	150
<i>bellii</i>	180, 204, 206	<i>Vireosylva</i>	150
<i>Bell's Vireo</i>	204	<i>Bohemian Waxwing</i>	106
<i>berlandieri</i> , <i>Thryothorus</i>	547, 548	<i>bohemica</i> , <i>Bombycilla</i>	109
<i>Thryothorus</i>	547, 548	<i>bohemicus</i> , <i>Garrulus</i>	109
<i>indovicianus</i>	541,	<i>boissoneaulti</i> , <i>Hirundo</i>	80
542, 546, 547, 548		<i>Bombiciflora</i>	104
<i>b</i>	547	<i>Bombycilla</i>	104
<i>var.</i>		<i>americana</i>	112
547, 548		<i>bohemica</i>	109
<i>Troglodytes</i>	547	<i>brachyrhynchus</i>	109
<i>Berlandier's Wren</i>	546	<i>cærulea</i>	109
<i>berlepschi</i> , <i>Henicorhina leucophrys</i>	609	<i>carolinensis</i>	112
<i>Bermuda Vireo</i>	186	<i>cedrorum</i>	111
<i>bermudianus</i> , <i>Vireo</i>	186	<i>garrula</i>	108, 109
<i>noveboracensis</i> 177, 185, 186		<i>garrulus</i>	109
<i>bernettii</i> , <i>Pica</i>	295	<i>mariae</i>	112
<i>bewicki</i> , <i>Telmatodytes</i>	555, 560	<i>phenicopteron</i>	105
<i>Thryomanes</i>	556, 583	<i>bombycilla</i> , <i>Parus</i>	109
<i>bewicki leucogas-</i>		<i>Bombyciphora</i>	104
<i>ter, a</i>	555	<i>cedrorum</i>	112
<i>Thryothorus</i>	554,	<i>polioceelia</i>	109
555, 556, 558, 559, 560, 566		<i>xanthoceelia</i>	112
<i>bewickii</i> , <i>Thryothorus</i>	564,	<i>Bombycivora</i>	104
556, 557, 559, 560, 565, 566		<i>garrula</i>	108
<i>Thryomanes</i>	549, 550, 555	<i>japonica</i>	105
<i>bewickii</i>	549, 552, 555	<i>Bonaparte's Gnatcatcher</i>	726
<i>Thryothorus</i>	554, 555, 556, 558, 565, 566	<i>bonariensis</i> , <i>Alauda</i>	22
<i>bewickii, a</i>	555	<i>borealis</i> , <i>Acanthopneuste</i>	696, 754
<i>Troglodytes</i>	548,	<i>borealis</i>	697
554, 556, 557, 559, 560, 565, 566		<i>Collurio</i>	240
<i>Bewick's Wren</i>	552	<i>Collyrio</i>	240
<i>bicolor</i> , <i>Baeolophus</i>	381, 384, 386, 387, 751	<i>Cyanocitta stelleri</i>	352, 353
<i>Chelidon</i>	89	<i>Lanius</i>	235, 237, 239, 240
<i>Herse</i>	89	<i>excubitor, forma</i>	240
<i>Hirundo</i>	85, 88, 89	<i>Phylloscopus</i>	696, 697
<i>Iridoprocne</i>	85, 86, 87, 90, 96	<i>Phyllopeuste</i>	694, 696, 697
<i>Lophophanes</i>	333, 334, 391	<i>Phyllopeustes</i>	696, 697

	Page.		Page.
<i>calidris</i> , <i>Vireosylva</i>	139, 140, 141	<i>Campylorhynchus scolopaceus</i>	500
<i>calidris</i> var.....	139	<i>zonatus</i>	511, 512, 513
<i>California Creeper</i>	468	<i>costaricensis</i>	512
Jay.....	327	<i>cana</i> , <i>Motacilla</i>	720
Marsh Wren.....	496	<i>Sylvia</i>	720
Shrike.....	249	<i>Canada Jay</i>	366
Wren.....	541	<i>canadensis</i> , <i>Corvus</i> ... 364, 367, 369, 370, 371, 373, 374	
<i>californica</i> , <i>Aphelocoma</i>	329, 330, 331, 336	<i>Dysornithia</i>	368
<i>californica</i>	324,	<i>Garrulus</i>	367, 369, 373
327, 330, 331		<i>Perisoreus</i>	365, 367,
<i>floridana</i> ... 329, 330, 331		368, 369, 370, 371, 373, 374	
var... 329, 330		<i>canadensis</i>	365, 366,
var. <i>woodhousei</i> , c.....	329, 330	368, 369, 370, 371, 372, 374	
<i>Cyanocitta</i>	323, 329,	<i>canadensis</i> var. <i>capit-</i>	
330, 331, 333, 334, 335, 336		<i>alis</i> , a.....	368
var.....	329	var. <i>canadensis</i>	368
<i>californica</i> var... 329, 332		<i>Sitta</i>	440, 443, 450, 451, 453
<i>floridana</i>	329	<i>canescens</i> , <i>Vireosylva calidris</i>	131, 143
var.....	329	<i>Vireosylva</i>	144
<i>Cyanocorax</i>	329, 333	<i>canifrons</i> , <i>Limnornis</i>	477
<i>Polioptila</i>	716, 734, 735	<i>cano-brunneus</i> , <i>Pheugopedius maculipe-</i>	
<i>californicus</i> , <i>Aegithalos minimus</i>	434, 436	<i>tus</i>	530, 536
<i>Cyanocitta floridanus</i>	329	<i>Thryothorus maculipectus</i> ..	536
<i>Cyanurus</i>	329	<i>canobrunneus</i> , <i>Thryothorus maculipectus</i> ..	536
<i>Garrulus</i>	328,	<i>cantans</i> , <i>Cyphorhinus</i>	674
330, 331, 332, 333, 335, 336		<i>Turdus</i>	674
<i>Psaltiriparus minimus</i>	426,	<i>cantatrix</i> , <i>Muscicapa</i>	185
434, 435, 436		<i>Vireo</i>	185
<i>Vireo vicinior</i>	204	<i>canticus</i> , <i>Cyclarhis flavipectus</i>	227
<i>Callichelidon</i>	28, 93, 98, 100	<i>Canyon Wren</i>	658
<i>cyaneoviridis</i>	99, 100	Dotted.....	659
<i>Callicitta</i>	292	Giraud's.....	657
<i>bullocki</i>	296	Intermediate.....	660
<i>Callisitta</i>	377, 437	Mexican.....	655
<i>Calobates</i>	2	<i>Cape Verdin</i>	432
<i>Calocitta</i>	237, 292, 346	<i>capensis</i> , <i>Corvus</i>	256
<i>bullockii</i>	295, 296, 298	<i>Hirundo</i>	76
<i>collisae</i>	295	<i>capistrata</i> , <i>Picolaptes</i>	506, 508
<i>colliei</i>	293, 294, 295	<i>capistratus</i> , <i>Campylorhynchus</i>	506, 508
<i>elegans</i>	295	<i>Heleodytes</i>	506
<i>formosa</i>	293, 294, 296, 297, 747	<i>capistratus</i> ..	501, 504, 506
<i>azurea</i>	293, 296, 298	<i>capitula</i> , <i>Henicorhina leucophrys</i> ... 609, 615, 616	
<i>formosa</i>	293, 295, 296	<i>Perisoreus</i>	372
<i>calophonus</i> , <i>Thryomanes bewickii</i>	550,	<i>canadensis</i>	365, 366,
555, 556, 567		370, 371, 372	
<i>Campephagidae</i>	233	<i>β</i>	371
<i>campestris</i> , <i>Alauda</i>	10	var.....	371
<i>Campylirhynchus</i>	500	<i>carbonacea</i> , <i>Cyanocitta stelleri</i> .. 346, 347, 354, 355	
<i>Campylorhynchus</i>	476, 500, 685	<i>Caribbean Martin</i>	38
<i>affinis</i>	520, 521	<i>carlotta</i> , <i>Cyanocitta stelleri</i>	346, 354
<i>albibrunneus</i>	504	<i>carmioli</i> , <i>Vireo</i>	177, 179, 199, 200
<i>albobrunneus</i>	504	<i>Carmioli's Shrike-Vireo</i>	224
<i>brunneicapillus</i>	519,	<i>Vireo</i>	199
520, 521, 522, 523, 524		<i>carnivorus</i> , <i>Corvus</i>	260, 261, 264
<i>capistratus</i>	506, 508	<i>corax</i>	261
<i>castaneus</i>	506	<i>β</i>	264
<i>chiapensis</i>	504	<i>γ</i>	261, 264
<i>couesi</i>	524	var.....	261, 264
<i>gularis</i>	527	<i>carolensis</i> , <i>Sitta</i>	443
<i>guttatus</i>	517	<i>Carolina Chickadee</i>	408
<i>humilis</i>	509	<i>carolinensis</i> , <i>Ampelis</i>	112
<i>jocosus</i>	525, 526	<i>Bombycilla</i>	112
<i>megalopterus</i>	514, 516	<i>Lanius</i>	243, 249
<i>nigriceps</i>	512	<i>Parus</i>	405, 406
<i>pallascens</i>	514, 516	<i>atricapillus</i>	406
<i>rufinucha</i>	506, 508	var.....	405

	Page		Page
carolinensis, Parus (Poecile) carolinensis..	405	cayanensis, Hirundo	42
Penthestes	395	cayanus, Cyanocorax	303, 304
carolinensis. 395, 403, 406		caymanensis, Vireosylva	131, 136, 137
Poecila	405	cecilia, Anthus	17
Poecile	405, 752	Cecropis	76
Sitta	438, 440, 443, 444, 445, 447, 449	americana	84
carolinensis .. 440, 441, 443, 444		chalybea	42
var.	443	fulva	54
caroliniana, Certhia	545	pagorum	80
Cartago Gnatcatcher	728	rufa	13
Caryocatactes	280	rustica	30
caryocatactes, Corvus	280	stabulum	60
caspicus, Parus	8	subis	34
cassini, Cyanocorax	286	thalassinus	94
Lanivireo	174	violacea	35
solitaria var.	174	Cedar Waxwing	100
solitarius	174, 175	cedrorum, Ampelis	105, 106, 109, 111, 112
β	174	Bombycilla	111
var.	174	Bombyciphora	112
Vireo solitarius	175	Central American Brown Jay	301
var.	174	American Dipper	651
cassinii, Cyanocorax	286	Magpie-Jay	296
Lanivireo solitarius	163, 172, 175	Cephalophoneus	234
Vireo	174, 175	Cephalopyrus	375, 376
(Lanivireo)	174	cerroensis, Thyromanes bewickii	550, 562
solitarius	175, 176	Thryothorus	562
Cassin's Vireo	172	Cerros Island Wren	562
castanea, Henicorhina leucophrys	609, 615	Certhia	377, 462, 664
castaneifrons	387	albifrons	657
Parus atricristatus	386	americana	466, 467, 469, 470
castaneus, Campylorhynchus	506	caroliniana	545
Thryophilus	622, 624, 625, 626	familiaris	463, 465, 467, 468, 469, 470
castaneus	622, 625	albescens	463, 472, 473
Thryothorus	625, 626	alticola	463, 471, 472, 473
Troglodytes	625	americana	463, 464, 469
castanonotus, Thryophilus rufalbus	623, 633, 634, 635	β. americana	467, 468, 469
Catherpes	473, 474, 476, 479, 653, 656	var. americana	466, 467, 468, 470
conspersus	660	familiaris	463
mexicanus	656, 657, 658, 660, 662	fusca	465, 468, 469
var.	659	var. fusca	465
albifrons	655, 657	mexicana	469, 470, 472, 473
conspersus	655,	var. mexicana	472
β 58, 659, 660, 662		montana	463, 467, 468
β. conspersus	659, 660	occidentalis .. 463, 469, 470, 471	
var. conspersus	658,	rufa	466
659, 660, 662		Subsp. a. Certhia mexi-	
mexicanus .. 654, 655, 656		cana	469, 472
var. mexicanus .. 656, 657		zelotes	463, 468, 469
polioptilus .. 655, 660, 663		fusca	465, 468, 469
punctulatus	664,	mexicana	468, 469, 470, 472, 473
659, 660, 663		albescens	473
sumichrasti	663, 665	montana	468
catototi, Corvus	263	muraria	460
caudata, Pica	287	occidentalis	471
caudatus, Parus	425	palustris	486, 490, 493, 495, 496, 499, 753
Ptiliogonys	119	rufa	466
Ptilogonys	114, 115, 118, 119	scandens	460
Sphenotelus	119	spilonota	460
caurina, Corone	273, 746	Certhiidae	377, 459
caurinus, Corvus	272, 773	Certhiinae	461
americanus .. 258, 272, 273, 746		Certhiparus	375
b.	273	Certhius	462
var.	272, 273	Cerulean Jay	344
brachyrhynchus .. 746		cervicalis, Motacilla	6
frugivorus	273	cervina, Motacilla	17
		cervinus, Anthus	11, 15, 17

	Page.		Page.
<i>chalybea</i> , Hirundo.....	42	<i>chivi</i> , <i>Vireosylva</i> <i>chivi</i>	132
<i>chalybea</i> , <i>Cecropis</i>	42	<i>Vireosylva</i>	132
Hirundo.....	42	<i>oblivacea</i> var.....	132
<i>Progne</i>	42	<i>chloronota</i> , <i>Pica</i>	307
<i>Progne</i>	31, 40, 42	<i>Xanthoura</i> <i>yncas</i>	311
Chamaea	376, 684, 685	<i>Cholornis</i>	376
<i>fasciata</i>	687, 688, 689, 691	<i>chrysogastra</i> , <i>Motacilla</i>	8
<i>fasciata</i>	686, 691	<i>chrysops</i> , <i>Pica</i>	303
var. <i>fasciata</i>	687, 689	<i>chrysorhoa</i> , <i>Hypothymis</i>	117
<i>henshawii</i>	686, 687, 689, 691	<i>Cichlops</i>	10
var. <i>henshawii</i>	691	<i>monticolus</i>	10
<i>intermedia</i>	687, 688, 689	<i>Cichlopsis</i> <i>nitens</i>	122
<i>phaea</i>	686, 687, 688, 689	<i>cimiciphagus</i> , <i>Corvus</i>	315
<i>rufula</i>	686, 687, 688, 689	<i>Cinædium</i>	10
Chamaea fasciata	688	<i>Cinclidæ</i>	675
Chamaeidae	376, 688	<i>Cinclus</i>	676
Chamaea fasciata	688	<i>americanus</i>	681
Chamoea	685	<i>aquaticus</i>	676
<i>fasciata</i>	691	<i>ardesiacus</i>	677, 681, 682
Chanco Rock Wren	651	<i>hydrophilus</i>	676
charienturus , <i>Thryomanes</i> <i>bewickii</i>	562, 564	<i>leucocephalus</i>	677
<i>bewickii</i>	550, 561, 562	<i>leuconotus</i>	677
Chat , Palm.....	126	<i>mexicana</i>	681
White-naped Palm.....	127	<i>mexicanus</i>	678, 679, 680, 681
Chelidon	76	var. <i>ardesiacus</i>	682
<i>bicolor</i>	89	<i>mexicanus</i>	676, 677
<i>erythrogaster</i>	82, 85	var. <i>mexicanus</i>	679, 681
<i>erythrogastra</i>	82	<i>unicolor</i>	676, 677, 679
<i>procne</i>	76, 80	<i>mortoni</i>	681
<i>rustica</i>	80	<i>pallasii</i>	680
<i>tyleri</i>	85	<i>rivularis</i>	677
Chelidonaria	24	<i>schulzi</i>	677
chemungensis , <i>Collyrio</i>	240	<i>townsendi</i>	681
Chestnut-backed Chickadee	416	<i>unicolor</i>	681
Wren.....	683	<i>cinclus</i> , <i>Sturnus</i>	676
Wood Wren.....	615	<i>cincta</i> , <i>Poecilla</i>	396
Chiapas Cactus Wren	504	<i>Poecilla</i>	396
<i>Vireo</i>	159	<i>cinctus</i> , <i>Parus</i>	396, 411, 412
Wren.....	641	<i>Penthestes</i>	396
chiapensis , <i>Campylorhynchus</i>	504	<i>cinctus</i>	396
<i>Heleodytes</i>	501, 504	<i>cinereus</i> , <i>Bæolophus</i> <i>inornatus</i>	381, 391
Chickadee	397	<i>Lophophanes</i> <i>inornatus</i>	392
Acadian.....	415	<i>Parus</i> (<i>Bæolophus</i>) <i>inornatus</i>	392
Alaskan.....	411	<i>inornatus</i>	392
Barlow's.....	418	<i>Regulus</i> <i>calendula</i>	706, 709
Carolina.....	403	<i>cinerea</i> , <i>Clivicola</i> <i>riparia</i>	76
Chestnut-backed.....	416	Hirundo.....	27, 76, 788
Columbian.....	414	<i>Motacilla</i>	5
Florida.....	406	<i>Vireosylva</i> <i>magister</i>	131, 136
Hudsonian.....	412	<i>cinereiceps</i> , <i>Hylophilus</i>	218
Long-tailed.....	399	<i>Cinereous</i> Wagtail.....	5
Mexican.....	407	<i>cinereus</i> , <i>Odontorhynchus</i>	500
Mountain.....	408	<i>Ptiliogonatus</i>	117
Nicasio.....	418	<i>Ptiliogonys</i>	117
Oregon.....	402	<i>Ptilogonys</i>	115, 117
Texan.....	406	<i>cinereus</i>	115, 117, 118
Yukon.....	402	<i>Thryophilus</i> <i>sinaloa</i>	623, 636
Chihuahuan Warbling Vireo	158	<i>Vireo</i>	136
Chimney Swallow , European.....	79	<i>Cinnycerthia</i>	477
chiriquensis , <i>Vireosylva</i> <i>josephæ</i>	134, 161	<i>unicolor</i>	477
Chiriqui Vireo	161	Cissilopha	312, 346
Wood Wren.....	613	<i>beechellii</i>	312, 313, 316
chivi	133	<i>melanocyanea</i>	312, 313, 317
<i>Sylvia</i>	132	<i>sanblasiana</i>	314
<i>Vireo</i>	132	<i>san-blasiana</i> <i>pulchra</i>	313, 314
<i>Vireosylva</i>	132	<i>san-blasiana</i>	313

	Page.		Page.
<i>Classiophya sanblasianus</i>	314	<i>coerulea, Culicivora</i>	718, 722
<i>yucatanica</i>	312, 313, 315	<i>Muscicapa</i>	719
<i>Classiophya sanblasiana</i>	312, 313	<i>coerulea, Culicivora</i>	718-721
<i>Classiophya beecheyi</i>	316	<i>Muscicapa</i>	718-722
<i>beecheyi</i>	316	<i>Polioptila</i>	719, 721, 722
<i>melanocyanea</i>	318	<i>cognatus, Virco luttoni</i>	179, 180, 743
<i>pulchra</i>	314	<i>Coiba Island Pepper-Shrike</i>	745
<i>yucatanica</i>	315	<i>coibae, Cyclarhis</i>	745
<i>Cistothorus</i>	473, 474, 476, 477, 480, 487	<i>Cyclorhis</i>	745
<i>aequatorialis</i>	482	<i>Collina Jay</i>	339
<i>brevirostris</i>	484	<i>Wren</i>	619
<i>brunneiceps</i>	482	<i>collinae, Aphelocoma sieberii</i>	325, 339, 349
<i>elegans</i>	485, 486	<i>collaris, Lanius</i>	234
<i>fasciolatus</i>	481	<i>colliae, Calocitta</i>	235
<i>griseus</i>	499	<i>colliei, Calocitta</i>	298, 294, 295
<i>interscapularis</i>	481	<i>Cyanurus</i>	235
<i>marianae</i>	498, 499	<i>Pica</i>	294
<i>paludicola</i>	495	<i>Collie's Magpie-Jay</i>	294
<i>palustris</i>	491, 492, 493, 495, 496, 499	<i>collina, Hemicorhina</i>	614
<i>dissaeptus</i>	491	<i>leucophrys</i>	609, 613, 614, 615
<i>griseus</i>	498, 499	<i>Collocalia ariel</i>	44
<i>marianae</i>	498, 499	<i>Collurio</i>	234
<i>paludicola</i>	495, 497	<i>borealis</i>	240
<i>paludicola</i>	495	<i>elegans</i>	237
<i>var. paludicola</i>	495, 497	<i>excubitoroides</i>	244, 247, 249, 250
<i>palustris</i>	491	<i>ludovicianus</i>	237, 242, 245
<i>var. palustris</i>	491, 493	<i>excubitoroides</i>	245
<i>pleius</i>	494, 496	<i>excubitoroides</i>	247, 250
<i>platensis</i>	481	<i>β excubitoroides</i>	247, 250
<i>polyglottus</i>	481, 486	<i>var. excubitoroides</i>	244
<i>elegans</i>	481, 482, 484, 486	.....	245, 247, 250
<i>lucidus</i>	481, 486	<i>b. excubitoroides</i>	245
<i>polyglottus</i>	481	.....	247, 250
<i>stellaris</i>	481, 482, 483, 484, 486, 496	<i>var. robustus</i>	237
<i>b. elegans</i>	485	<i>Collyrio borealis</i>	240
<i>(Telmatodytes) palustris</i>	491, 493, 496	<i>chemungensis</i>	240
<i>dissaeptus</i>	491	<i>elegans</i>	237
<i>aeptus</i>	491	<i>excubitoroides</i>	237, 244, 247, 250
<i>paludicola</i>	495, 497	<i>ludovicianus</i>	242, 245, 246
<i>palustris</i>	491	<i>var. robustus</i>	237
<i>Clarion Island Raven</i>	264	<i>Colinus minutus</i>	277
<i>Wren</i>	573	<i>ossifragus</i>	275
<i>clarionensis, Corvus corax</i>	257, 264, 265	<i>Columbian Chickadee</i>	414
<i>Clarke's Nutcracker</i>	281	<i>columbiana, Nucifraga</i>	280, 281, 282
<i>Cleptes</i>	286	<i>columbianus, Corvus</i>	280, 281
<i>hudsonicus</i>	289	<i>Nucifraga</i>	282
<i>nuttalli</i>	292	<i>Parus hudsonicus</i>	415
<i>Cliff Swallow</i>	47	<i>(Poecile) hudsonicus</i>	415
<i>Coahuila</i>	56	<i>Penthestes hudsonicus</i>	395, 414
<i>Cuban</i>	53	<i>Picicorvus</i>	282, 283
<i>Jamaican</i>	54	<i>communis, Anthus</i>	20
<i>Lesser</i>	50	<i>concolor, Cyanocorax</i>	344
<i>Swainson's</i>	51	<i>Hirundo</i>	44
<i>Climacterinae</i>	461	<i>Progne</i>	44
<i>Climacteris</i>	377, 460	<i>subis, var.</i>	44
<i>Clivicola</i>	24, 25, 72	<i>conditus, Thryophilus galbraithii</i>	624, 628
<i>europa</i>	76	<i>Conirostrum ornatum</i>	422
<i>riparia</i>	75, 76	<i>conspersus, Catherpes</i>	660
<i>cinerea</i>	76	<i>mexicanus</i>	655, 658
<i>maximiliani</i>	76	.....	659, 660, 662
<i>Coahuila Cliff Swallow</i>	56	<i>β</i>	659, 660
<i>Coban Swallow</i>	66	<i>var.</i>	654
<i>cobanensis, Vireosylva</i>	153	.....	659, 660, 662
<i>coelestis, Aphelocoma unicolor</i>	826, 845, 749	<i>cooki, Cyanopolius</i>	285
		<i>corallirostris, Hypherpes</i>	439
		<i>Corax</i>	256

	Page.		Page.
Corax <i>crucirostra</i>	746	Corvus <i>corax</i> <i>carnivorus</i>	261
corax , <i>Corvus</i>	256,	<i>β</i> <i>carnivorus</i>	264
<i>var.</i> , <i>Corvus</i>	257, 260, 263, 264	<i>var. carnivorus</i>	261, 264
coraya , <i>Sphenura</i>	260, 264	<i>γ</i> <i>carnivorus</i>	261, 264
<i>Turdus</i>	527	<i>clarionensis</i>	257, 264, 265
coronata , <i>Cyanocitta</i>	362, 363, 364	<i>var. littoralis</i>	260
<i>stelleri</i>	347,	<i>nobilis</i>	261
359, 361, 362, 363, 364		<i>β</i> <i>nobilis</i>	263
<i>Cyanura</i>	363	<i>principalis</i>	257, 259, 260, 261, 262
<i>stelleri</i> <i>var.</i>	364	<i>sinatus</i>	263
<i>Hirundo</i>	52, 54	<i>sinuatus</i>	257,
<i>Pica</i>	363	259, 260, 231, 262, 263, 264, 265	
coronatus , <i>Cyanocorax</i>	360, 363	<i>var.</i>	260, 264
<i>Cyanogarrulus</i>	362, 363	<i>corone</i>	268
<i>Cyanurus</i>	363	<i>cristatus</i>	345, 349, 351
<i>stelleri</i> <i>var. macrolophus</i> , <i>e.</i>	364	<i>cryptoleucus</i>	257, 265, 266, 267
<i>Garrulus</i>	356, 360, 362, 363	<i>cyanus</i>	246
Corone <i>americana</i>	269, 271, 746	<i>dominicensis</i>	279
<i>americanus</i>	269	<i>erythrophthalmus</i>	279
<i>caurina</i>	273, 746	<i>floridanus</i>	269, 327, 330, 336
<i>floridana</i>	270	<i>var. floridanus</i>	269
<i>leucognathus</i>	279	<i>frugilegus</i>	256
<i>mexicana</i>	276, 746	<i>frugivorus</i>	269, 272
<i>ossifraga</i>	275, 746	<i>caurinus</i>	273
corone , <i>Corvus</i>	268	<i>floridanus</i>	269
Coronides	303, 304	<i>fuscicapillus</i>	256
corrasus , <i>Microcerculus</i>	666	<i>grebnitzkii</i>	257
Corthylio	698	<i>hudsonius</i>	286, 289
<i>calendula</i>	709	<i>infaustus</i>	365, 750
<i>cuvieri</i>	706	<i>jamaicensis</i>	256, 257, 258, 276, 277, 278
Corvinæ	256, 280, 283	<i>leucognathus</i>	257, 258, 279
Corvus	257	<i>erythrophthalmus</i>	258,
<i>affinis</i>	256	279	
<i>americanus</i> ...	258, 268, 270, 271, 276, 277, 278	<i>leucognathus</i>	258, 278
<i>americanus</i> ...	258, 267, 269, 270	<i>littoralis</i>	260
<i>a. americanus</i>	268	<i>lugubris</i>	260
<i>var. americanus</i>	268	<i>major</i>	263
<i>caurinus</i>	258, 272, 273	<i>maritimus</i>	275
<i>b. caurinus</i>	273	<i>megonyx</i>	283
<i>var. caurinus</i>	272, 273	<i>mexicanus</i>	256, 258, 275, 276
<i>floridanus</i>	269, 270	<i>minutus</i>	257, 258, 276, 277
<i>b. floridanus</i>	269	<i>morio</i>	299
<i>var. Corvus floridanus</i>	269	<i>nasicus</i>	257, 258, 277, 278
<i>var. floridanus</i>	269	<i>nobilis</i>	261, 263
<i>hesperis</i>	258, 270, 272	<i>ossifragus</i>	258, 270, 273, 274, 275, 278
<i>pascuus</i>	258, 269, 270	<i>palmarum</i>	258, 276
<i>azureus</i>	304, 339	<i>peruvianus</i>	305, 306
<i>brachyrhynchus</i>	746	<i>pica</i>	286, 287, 289
<i>brachyrhynchus</i> ..	746	(<i>Pica</i>) <i>beecheii</i>	315
<i>caurinus</i>	746	<i>pileatus</i>	303, 305
<i>hesperis</i>	746	<i>rusticus</i>	287
<i>pascuus</i>	746	<i>scapulatus</i>	256
<i>bullockii</i>	295	<i>sinuatus</i>	261, 263, 265
<i>cacaloti</i>	263	<i>solitarius</i>	257, 276
<i>canadensis</i> ...	364, 367, 369, 370, 371, 373, 374	<i>splendens</i>	256, 263
<i>capensis</i>	256	<i>stelleri</i>	345, 352, 355, 356, 357, 359
<i>carnivorus</i>	260, 261, 264	<i>ultramarinus</i>	330, 333, 339, 341, 343, 344
<i>caryocatactes</i>	280	<i>violaceus</i>	256
<i>catotoli</i>	263	<i>vociferus</i>	303
<i>caurinus</i>	272, 273	<i>yncas</i>	305, 309
<i>cinclaphagus</i>	815	Corydalla	10
<i>columbianus</i>	280, 281	Costa Rican Bay Wren	625
<i>corax</i>	256, 257, 260, 263, 264	<i>Cactus Wren</i>	512
<i>behringianus</i>	257	<i>House Wren</i>	576
		<i>Pepper-Shrike</i>	280

	Page.		Page.
Costa Rican Ptilagonys.....	118	cristatus, Parus.....	379, 383
costaricensis, Campylorhynchus zonatus.....	512	Regulus.....	701, 703
Heleodytes zonatus.....	502, 512	Crow, American.....	267
Thryophilus castaneus.....	622, 624, 626	Fish.....	273
Vireosylva josephæ.....	134, 159, 161, 741	Florida.....	289
Cotile.....	72	Haitian.....	279
cowani.....	73	Jamaican.....	277
diluta.....	73	Lesser Cuban.....	276
fulvigula.....	65	Mexican.....	275
fulvipennis.....	61	Northwest.....	272
riparia.....	75	Palm.....	276
serripennis.....	60	Porto Rican.....	275
shelleyi.....	73	Western.....	279
uropygialis.....	64	crucifrostra, Corax.....	746
Cotyle.....	72	cryptoleuca, Progne.....	30, 31, 35, 37, 38, 39, 40
flavigastra.....	61, 64	subis.....	35
fluvialilis.....	76	var.....	35
fulvipennis.....	61, 62, 63	cryptoleucus, Corvus.....	257, 265, 266, 267
microhynchus.....	76	cryptus, Thryomanes bewickii.....	551, 555, 557
pyrrhonota.....	50	Cuban Cliff Swallow.....	53
riparia.....	75	Gnatcatcher.....	735
ruficollis.....	64	Martin.....	37
serripennis.....	59, 63	cucullata, Cyanolyca.....	218, 219, 223
uropygialis.....	64	Hirundo.....	76, 77
couchi.....	339	cucullatus, Cyanocorax.....	223
Aphelocoma.....	343	Culicivora.....	719
sieberii.....	325, 342, 343	atricapilla.....	715, 733, 735
ultramarina.....	343	bilineata.....	726, 727, 728, 729
subsp. a.....		caerulea.....	715
Aphelo-.....		caerulea.....	719
coma.....	343	caerulea.....	718, 721, 722
Cyanocitta ultramarina, var.....	343	dumicola.....	715
couchii, Aphelocoma ultramarina.....	343	lembeyel.....	736
Cyanocitta.....	343	lembeyel.....	736
Couch's Jay.....	342	mexicana.....	722, 733
couesi, Campylorhynchus.....	524	plumbea.....	733
Heleodytes brunneicapillus.....	503, 522, 524	cumanensis, Thryophilus rufalbus.....	623
cowani, Cotile.....	73	Troglodytes.....	623
Cozumel Pepper-Shrike.....	230	cuvieri, Corthylio.....	705
Wren.....	573	Regulus.....	705
Cractes.....	750	Sylvia.....	705
crassirostris, Cyanocitta.....	315, 317	cuvieri, Regulus.....	700, 704, 705
Cyanurus.....	315	Cuvier's Kinglet.....	704
Lanivireo.....	190	cyanea, Aphelocoma.....	324, 326, 327
Vireo.....	190	cyaneoviridis, Callichelidon.....	100
crassirostris.....	178, 189, 191	Callichelidon.....	99, 100
Creeper, Brown.....	464	Hirundo.....	93, 100
California.....	468	(Callichelidon).....	100
Mexican.....	471	Tachycineta.....	100
Rocky Mountain.....	467	cyaneus, Garrulus.....	326
Sierra Madre.....	472	Parus.....	379
Tawny.....	470	cyanicollis, Cyanocitta.....	223
Creepers.....	459	Cyanistes.....	379, 385
Crested Titmouse.....	383	cyanocapilla, Xanthoura luxuosa.....	311
cristata, Cyanocitta.....	346, 349, 350, 351, 353	Xanthura.....	311
cristata.....	346, 347, 350, 351	cyanocapillus, Cyanocorax.....	308
Cyanura.....	349, 351	Cyanurus.....	311
Pica.....	349	cyanocephala, Gymnocitta.....	285
cristatus, Corvus.....	345, 349, 351	Gymnokitta.....	285
Cyanocorax.....	349	Nucifraga.....	285
Cyanogarrulus.....	350	Cyanocephalus.....	283
Cyanurus.....	349, 351	cyanocephalus.....	284, 285, 286
Garrulus.....	349	wiedl.....	286
Lanius.....	234	cyanocephalus, Gymnokitta.....	284
Lophophanes.....	378, 380	Gymnorhinus.....	283, 284
		Psittorhinus.....	285

	Page.		Page.
Cyanochlora , Pica	253	Cyanoetta ultramarina	343, 344
Cyanocitta	256, 324, 345, 346	var. arizonæ	341
argentigula	320	var. couchi	343
beachii	315, 316	var. sordida	339
beecheyi	316	var. ultramarina ..	344
beecheyii	316	ultramarinus	343
californica	328, 329,	unicolor	344, 345
830, 331, 333, 334, 335, 336		woodhousei	334
var. californica ..	329, 332	woodhouseii	334, 335, 337
var. sumichrasti ..	335, 336	woodhouseii	334
var. woodhousei ..	334	yucatanica	315
var. californica	329	Cyanocera	303, 304, 305, 346
coronata	362, 363, 364	affinis	303, 305
couchi	343	affinis	304
crassirostris	315, 317	zeledoni	304, 305
cristata	346, 349, 350, 351, 353	argentigula	320
cristata	346, 347, 350, 351	armillatus	318
florincola	346, 443, 350, 351	beecheyi	316
cyanicollis	323	californica	329, 333
diademata	359, 362, 364	cassini	286
floridana	327, 336	cassinii	286
californica	329	cayanus	303, 304
var. californica ..	329	concolor	344
var. sumichrasti ..	335, 336	coronatus	360, 363
var. woodhousei ..	334	cristatus	349
woodhousei	334	cucullatus	323
var. woodhouseii ..	334	cyanocapillus	303
floridanus	327	cyanomelas	304
californicus	329	cyanopogon	303, 304
frontalis	357	floridanus	327
galeata	364, 750	geoffroyi	314, 317
geoffroyi	317	guatemalensis	311
germana	315	hyacinthinus	303
luxuosa	307	luxuosus	307, 308, 309, 310, 311
macrolopha	360	melanocyaneus	313
melanocyanea	318	mystacalis	303
melanocyaneus	318	nanus	321, 322
nana	321	ornatus	322, 323
nanus	321	peruvianus	303
ornata	322, 323	pileatus	305
pulchra	319	pumilo	322
pumilo	322	sanblasianus	314
sanblasiana	314	sclateri	303, 304
sieberi	339	sieberi	333
sordida	339, 340, 341, 343	stelleri	353, 356, 359
var. arizonæ	341	ultramarinus	333, 339
stelleri	346, 353, 355, 356, 359	unicolor	344, 345, 749
annectens	347, 357, 358	violaceus	303, 304
azteca	347, 359, 361, 362, 363, 364	yncas	307, 309, 311
borealis	352, 353	Cyanogarrulus	345
carbonacea	346, 347, 354, 355	coronatus	362, 363
carlottæ	346, 354	cristatus	350
coronata	347,	diadematus	359, 362
359, 361, 362, 363, 364		sordidus	339
diademata	347,	stelleri	353
353, 360, 361, 362, 363		Cyanogenys	302
frontalis	347, 354, 355	Psittorhinus	301, 302
f. frontalis	357	mexicanus ..	299, 301, 303
var. frontalis	356, 357	Cyanoleuca , Atticora	69, 71
littoralis	353, 750	Herse	71
littoralis	353	Hirundo	68, 69, 70, 71
macrolopha	359, 360, 361	Petrochelidon	71
stelleri	346, 351, 353, 354, 357	Pygochelidon	69
sumichrasti	336	Cyanolyca	313, 324
supercilliosa	329	argentigula	313, 320, 747
		armillata	313

	Page.		Page.
<i>Cyanolyca beecheyi</i>	316, 747	<i>Cyanurus stelleri</i> var. <i>macrolophus</i>	359
<i>beechii</i>	816	a. <i>stelleri</i>	358, 355
<i>cucullata</i>	318, 319, 323	b. <i>frontalis</i>	356
<i>melanocyanea</i>	318, 747	c. <i>macrolophus</i>	360
<i>mirabilis</i>	748	d. <i>diadematus</i>	362
<i>mitrata</i>	319, 322, 323	e. <i>coronatus</i>	364
<i>nana</i>	831,	<i>stellerii</i>	352
319, 320, 321, 324, 748		var. <i>macrolophus</i>	360
<i>ornata</i>	318, 323, 749	<i>ultramarinus</i>	343, 344
<i>pulchra</i>	319	<i>unicolor</i>	344
<i>pumilo</i>	318,	<i>woodhouseii</i>	335
319, 321, 322, 324		<i>cyanus</i> , <i>Corvus</i>	286
<i>sanblasiana</i>	814	<i>Cyclarhis</i>	130, 213, 228
<i>yucatanica</i>	747	<i>coibae</i>	745
<i>Cyanolyca</i>	324	<i>flavipectus</i>	227
<i>cyanomelas</i> , <i>Cyanocorax</i>	304	<i>canticus</i>	227
<i>Cyanopica</i>	286	<i>flavipectus</i>	227
<i>cyanopogon</i> , <i>Cyanocorax</i>	303, 304	<i>subflavescens</i>	227, 230
<i>Cyanopollus</i>	286, 287	<i>flaviventris</i>	227, 229, 230
<i>cooki</i>	286	<i>flaviventris</i>	227, 228, 229
<i>vallanti</i>	286	<i>yucatanensis</i>	227, 230
<i>cyanopyrrha</i> , <i>Hirundo</i>	84	<i>insularis</i>	227, 228
<i>cyanotis</i> , <i>Aphelocoma</i>	324, 335, 336, 337	<i>osburnii</i>	214
<i>Cyanura bullocki</i>	295	<i>Cyclorhis</i>	226
<i>coronata</i>	363	<i>amaurophrys</i>	229
var. <i>diademata</i>	362	<i>coibae</i>	745
var. <i>macrolopha</i>	360	<i>flavipectus</i>	227, 232
<i>cristata</i>	349, 351	<i>subflavescens</i>	232
<i>frontalis</i>	356	<i>trinitatis</i>	227
var. <i>frontalis</i>	356	<i>flaviventris</i>	229, 232, 745
<i>macrolopha</i>	358, 360	<i>subflavescens</i>	232
<i>macrolophus</i>	362	<i>Cycloris</i>	226
<i>stelleri</i>	353, 355, 356, 357, 359	<i>flaviventris</i>	229
var. <i>annectens</i>	358	<i>Cyclorhis</i>	226
var. <i>coronata</i>	364	<i>Cynædium</i>	10
var. <i>diademata</i>	362	<i>Cyphorhina</i>	670
<i>frontalis</i>	356	<i>Cyphorhinus</i>	670
β. <i>frontalis</i>	356	<i>cantans</i>	674
var. <i>frontalis</i>	355, 356	<i>fasciatoventris</i>	682
<i>macrolopha</i>	360	<i>lawrencii</i>	674
var. <i>macrolopha</i>	360	<i>leucophrys</i>	608, 614
var. <i>stelleri</i>	353, 355	<i>leucostictus</i>	608, 611, 613
<i>Cyanurus</i>	292	<i>mexicanus</i>	656
<i>beechii</i>	316	<i>obsoletus</i>	646
<i>bullocki</i>	295, 296, 298	<i>philomela</i>	667
<i>californicus</i>	329	<i>pusillus</i>	619
<i>colliet</i>	295	<i>richardsoni</i>	674
<i>coronatus</i>	362	<i>thoracicus</i>	671
<i>crassirostris</i>	315	<i>Cyphorhinus albigularis</i>	582
<i>cristatus</i>	349, 351	<i>bambila</i>	670
<i>cyanocapillus</i>	311	<i>brunescens</i>	672
<i>diadematus</i>	362	<i>dichrous</i>	672
<i>floridanus</i>	327	<i>lawrencei</i>	674
<i>formosus</i>	296	<i>lawrencii</i>	674
<i>geoffroyi</i>	314	<i>leucostictus</i>	612, 613
<i>gubernatrix</i>	296, 298	<i>modulator</i>	672
<i>macrolophus</i>	360	<i>phæocephalus</i>	672
<i>melanocyanus</i>	318	<i>philomela</i>	670
<i>nanus</i>	321	<i>prosthleucus</i>	611, 612, 615
<i>ornatus</i>	323	<i>pusillus</i>	619
<i>pumilio</i>	322	<i>richardsoni</i>	674
<i>sanblasianus</i>	314	<i>salvini</i>	672
<i>sieberi</i>	339, 341		
<i>sordidus</i>	339		
<i>stelleri</i>	352, 355, 356, 359		
var. <i>macrolopha</i>	358, 360		

D.

<i>danicus</i> , <i>Anthus</i>	20
<i>daulias</i> , <i>Microcerulus</i>	666, 668, 669

	Page.
<i>decurtata</i> , <i>Pachysylvia</i>	214, 215, 216, 218
<i>Sylvicola</i>	218
<i>decurtatus</i> , <i>Hylophilus</i>	218
<i>Dendrophila</i>	377, 437
Deppé's Banded Wren.....	681
Desert Wren.....	557
<i>desertorum</i> , <i>Anthus</i>	20
<i>diademata</i> , <i>Cyanocitta</i>	359, 362, 364
<i>stelleri</i>	347,
358, 360, 361, 362, 363	
<i>Cyanura coronata</i> var.....	362
<i>stelleri</i> var.....	362
<i>diadematus</i> , <i>Cyanogarrulus</i>	359, 362
<i>Cyanurus</i>	362
<i>stelleri</i> var. <i>macrolo-</i>	
<i>phus d</i>	362
<i>Lophocorax</i>	359, 750
<i>dichrous</i> , <i>Cyphorhinus</i>	672
<i>Leucoclepis</i>	672
<i>thoracicus</i>	673
<i>Lophophanes</i>	380
<i>Dicruridæ</i>	233
<i>diluta</i> , <i>Cotile</i>	73
<i>Diplocheilidon</i>	27, 738
<i>Dipper</i> , American.....	679
Central American.....	681
Mexican.....	677
<i>Dippers</i>	675
<i>dissæptus</i> , <i>Cistothorus palustris</i>	491
(<i>Telmatodytes</i>) <i>pa-</i>	
<i>lustris</i>	491, 494
<i>domestica</i> , <i>Hirundo</i>	31, 43, 80
var.....	85
<i>Progne</i>	31, 43
<i>chalybea</i>	31
<i>Sylvia</i>	581
<i>Troglodytes</i>	581
<i>domesticus</i> , <i>Troglodytes</i>	581
<i>domesticus</i> , <i>park-</i>	
<i>mani a</i>	581
<i>dominica</i> , <i>Tanagra</i>	125, 127
Dominican Wren.....	594
<i>dominicana</i> , <i>Vireosylvia calidris</i>	141
var.....	141
<i>dominicensis</i> , <i>Corvus</i>	279
<i>Hirundo</i>	38, 39, 43, 103
<i>euchrysea</i> , var.....	100, 103
<i>Merula</i>	139
<i>Progne</i> 30, 31, 37, 38, 39, 40, 41, 43	
(subis var?).....	40
<i>Tanagra</i>	127
<i>dominicus</i> , <i>Dulus</i>	126, 127
<i>Donacobius albobrunneus</i>	504
Dotted Canyon Wren.....	659
<i>drymoeus</i> , <i>Thryomanes bewicki</i>	565
<i>bewicki</i> ... 550, 558, 565	
<i>Du Bus' Shrike-Vireo</i>	225
<i>Dulidæ</i>	125
<i>Dulus</i>	125
<i>dominicus</i>	126, 127
<i>nuchalis</i>	126, 127
<i>palmarum</i>	127
<i>dumicola</i> , <i>Culicivora</i>	715
<i>Sylvia</i>	715
Durango Wren.....	588
Dusky Kinglet.....	710

	Page
Dusky Wren-Tit.....	689
Dwarf Jay.....	320
<i>Vireo</i>	304
<i>Dysornithia</i>	364
<i>canadensis</i>	368
E.	
<i>eldouxi</i> , <i>Thryothorus</i>	481
<i>elegans</i> , <i>Calocitta</i>	295
<i>Cistothorus</i>	485, 486
<i>polyglottus</i> . 481, 482, 484, 486	
<i>stellaris b</i>	485
<i>Collurio</i>	237
<i>Collyrio</i>	237
<i>Lanius</i>	236, 237, 250
<i>Progne</i>	30, 35
<i>elutus</i> , <i>Thryophilus modestus</i>	624, 640, 641
<i>emini</i> , <i>Hirundo</i>	77
<i>Enneoctonus</i>	234
<i>Enneoctornis</i>	234
<i>eremophilus</i> , <i>Thryomanes bewicki</i>	551, 557, 559
<i>erythrocephalus</i> , <i>Parus</i>	425
<i>erythrogaster</i> , <i>Chelidon</i>	82, 85
<i>Hirundo</i>	77, 81
<i>horreorum a</i>	82
<i>erythrogastra</i> , <i>Chelidon</i>	82
<i>Hirundo</i>	78, 80, 82, 84, 85
<i>Hirundo rustica</i>	83
<i>erythrophthalmus</i> , <i>Corvus</i>	279
<i>leucognaphalus</i>	258,
279	
<i>erythropygia</i> , <i>Hirundo</i>	76
<i>euchrysea</i> , <i>Hirundo</i>	100, 740
<i>Lamprochelidon</i>	101
<i>europæa</i> , <i>Pica</i>	287
<i>Pipra</i>	425
<i>Riparia</i>	72, 76
<i>Sitta</i>	439
<i>Sitta, s</i>	455
<i>Sitta, y</i>	443
<i>europæus</i> , <i>Lanius borealis</i>	235
<i>Troglodytes</i>	600
<i>europæa</i> , <i>Clivicola</i>	76
European Chimney Swallow.....	79
<i>evura</i> , <i>Parus hudsonicus</i>	414
(<i>Pæcile</i>) <i>hudsonicus</i>	414
<i>excubitor</i> , <i>Lanius</i>	234
<i>forma major</i>	235
<i>excubitorides</i> , <i>Collurio ludovicianus</i>	248, 250
<i>Collyrio</i>	250
<i>Lanius</i>	237, 239, 249, 250
<i>ludovicianus</i>	236,
245, 246, 247, 248, 249	
<i>ludovicianus b</i>	245
<i>excubi-</i>	
<i>torides b</i>	247
<i>excubitorides</i> , <i>Lanius</i>	244, 247
<i>excubitoroides</i> , <i>Collurio</i>	244, 247, 249, 250
<i>ludovicianus</i> 247, 250	
<i>β</i> 247, 250	
var. 244, 245,	
247, 250	
var. <i>ex-</i>	
<i>cubitoroides b</i> ... 245,	
247, 520	

	Page		Page
excubitoroides, Collyrio.....	227, 244, 247	flaviventris, Cyclaris.....	229
Lanius.....	244, 247, 249	Cyclorhis.....	229, 232
ludovicianus.....	248	Cycloris.....	229
excubitoroides, Lanius.....	244, 250	Cyclorhis.....	745
eximius, Vireolanius.....	223	flaviviridis, Vireo.....	146, 150
exsul, Salpinctes obsoletus.....	644, 650	flavoviridis, Phyllomanes.....	146, 742
F.....		Vireo.....	146, 147
familiaris, Certhia.....	463, 465, 467, 468, 469, 470	(Vireosylva).....	146
familiaris.....	463	Vireosylva.....	132
fasciata, Chamaea.....	687, 688, 689, 691	flavoviridis.....	132, 144, 147
fasciata.....	686, 691	Vireosylva.....	145, 147, 150
var.....	687, 689	agilis.....	146
Chamaea.....	688	flavoviridis var.....	146
Chamaea.....	691	flavus, Budytes.....	8, 10
Hirundo.....	27	flavus.....	8
Motacilla.....	6	Florida Bluejay.....	320
fasciati-ventris, Pheugopedius.....	533	Chickadee.....	406
Thryothorus.....	529, 532, 533	Crow.....	280
fasciato-ventris, Cyphorhinus.....	532	Jay.....	328
Thryothorus.....	532, 533	White-breasted Nuthatch.....	444
Trogodytes.....	532, 533	Wren.....	545
fasciato-ventris, Pheugopedius.....	528, 529, 532	floridana, Aphelocoma.....	327
fasciato-ven- tris.....	529	floridana var. wood- housei, a.....	327
Thryothorus.....	529, 532	Corone.....	220
fasciatus, Budytes.....	8	Cyanocitta.....	327, 336
Parus.....	687	Progne subis.....	5
Salpinctes.....	644, 658	floridanus, Corvus.....	269, 327, 330, 336
fasciolatus, Cistothorus.....	481	var.....	269
felix, Pheugopedius.....	530, 537, 538	americanus.....	269, 280
felix.....	530, 536	b.....	269
Thryothorus.....	537, 538, 539, 641	var.....	269
felix a.....	537, 538	var. Corvus.....	269
Trogodytes.....	537	frugivorus.....	269
festiva, Henicorhina leucophrys.....	609, 616	Cyanocitta.....	327
Ficus.....	234	Cyanocorax.....	327
Fish Crow.....	278	Cyanurus.....	327
flava, Budytes.....	8, 10	Garrulus.....	327, 330
Motacilla.....	7, 8, 10	Parus (Baeolophus) bicolor.....	334
flaveola, Motacilla.....	8	(Lophophanes) bicolor.....	334
flavescens, Motacilla.....	8	Progne subis.....	33
Sylvia.....	696	florincola, Cyanocitta cristata.....	346, 348, 350, 351
Vireo crassirostris.....	178, 180, 191, 192	fluvialis, Cotyle.....	76
flaviceps, Aegithalus.....	421, 423	Flycatcher, Golden-throated.....	166
Anthoscopus flaviceps.....	422	Green.....	134
Auriparus.....	422, 423	Red-eyed.....	149
flaviceps.....	420, 422	Flycatchers, Silky.....	113
Paroides.....	421, 423	Formicarius bamba.....	670
Psaltia.....	421	musicus.....	670
Psaltiriparus.....	422	formosa, Calocitta.....	293, 294, 296, 297, 747
flavifrons, Lanivireo.....	162, 163, 166, 167	formosa.....	293, 295, 296
Parus.....	422	Pica.....	292, 296, 297
Phyllomanes.....	742	formosus, Cyanurus.....	296
Vireo.....	161, 165, 168	forreri, Vireo flavoviridis.....	147
(Lanivireo).....	166	Vireosylva flavoviridis.....	132, 148
Vireosylva.....	166	Forrer's Vireo.....	148
flavigastra, Cotyle.....	61, 64	Frazer's Vireo.....	199
Hirundo.....	58, 64	frenata, Vireosylva.....	140
flavipectus, Cyclarhis.....	227	frontalis, Cyanocitta.....	357
flavipectus.....	227	stelleri.....	347, 354, 355
Cyclorhis.....	227, 232	β.....	357
flavipes, Hylophilus.....	216, 221	var.....	356, 357
β.....	221	Cyanura.....	356
Pachysylva.....	216, 743	var.....	356
flaviventris, Cyclarhis.....	227, 229, 230	stelleri β.....	356
flaviventris.....	227, 238, 229	var.....	355, 356

	Page.
<i>frontalis</i> , <i>Cyanura stelleri</i> β var. <i>macrophus</i> b	356
<i>Hirundo</i>	87
<i>frugilegus</i> , <i>Corvus</i>	256
<i>frugivorus</i> , <i>Corvus</i>	269, 272
<i>fucata</i> , <i>Hirundo</i>	26, 738
<i>fuliginosa</i> , <i>Pica</i>	300, 301
<i>fuliginosus</i> , <i>Psittorhinus morio</i>	298, 300
<i>fulva</i> , <i>Cecropis</i>	54
<i>Herse</i>	50, 54
<i>Hirundo</i>	49, 52, 54, 55
<i>Petrochelidon</i>	46, 50, 54, 55
<i>fulva</i>	46, 47, 53, 54, 56
<i>fulvigula</i> , <i>Cotile</i>	65
<i>Stelgidopteryx</i>	63, 65
<i>fulvipennis</i> , <i>Cotile</i>	61
<i>Cotyle</i>	61, 62, 63
<i>Stelgidopteryx</i>	61, 62, 63
<i>ruficollis</i>	63
<i>fulvus</i> , <i>Hirundo</i>	49
<i>Troglodytes</i>	584
<i>fumaria</i> , <i>Hirundo</i>	84
<i>fumifrons</i> , <i>Perisoreus canadensis</i> 365, 366, 369, 370	
<i>furcata</i> , <i>Progne</i>	30, 31, 43
<i>Furnarius griseus</i>	500
<i>furva</i> , <i>Motacilla</i>	576, 578, 581
<i>furvus</i> , <i>Troglodytes</i>	576, 578, 581
<i>fusca</i> , <i>Certhia</i>	465, 468, 469
<i>familiaris</i>	465, 468, 469
<i>var.</i>	465
<i>Hirundo</i>	26
<i>fuscescapillus</i> , <i>Corvus</i>	256
<i>fuscus</i> , <i>Garrulus</i>	368
G.	
<i>Galapagos Martin</i>	43
<i>galbraithi</i> , <i>Thryophilus albigpectus</i>	638
<i>Thryothorus</i>	638
<i>Troglodytes</i>	638
<i>galbraithi</i> , <i>Thryophilus</i>	623, 624, 638
<i>galbraithi</i>	624, 637
<i>Thryothorus</i>	638
<i>Galbraith's Wren</i>	637
<i>galeata</i> , <i>Cyanocitta</i>	364, 750
<i>galeatus</i> , <i>Lepturus</i>	123
<i>Lophophanes</i>	393, 751
<i>Parus</i>	393
<i>gambeli</i> , <i>Lanius ludovicianus</i>	236, 249
<i>Parus</i>	410
(<i>Poecile</i>)	411
<i>Penthestes</i>	396, 408
<i>garrula</i> , <i>Ampelis</i>	108
<i>Bombycilla</i>	108, 109
<i>Bombycivora</i>	108
<i>Garrula gubernatrix</i>	296, 298
<i>Garrulina</i>	749
<i>nana</i>	749
<i>unicolor</i>	749
<i>Garrulina</i>	286, 298, 303, 305, 312, 345
<i>Garrulus</i>	346
<i>bohemicus</i>	109
<i>brachyrhynchus</i>	368
<i>bullockii</i>	295
<i>cærulescens</i>	327
<i>californicus</i>	323
328, 330, 331, 332, 333, 335, 336	
<i>canadensis</i>	367, 369, 373

	Page.
<i>Garrulus coronatus</i>	356, 360, 362, 363
<i>cristatus</i>	349
<i>cyaneus</i>	326
(<i>Cyanocorax</i>) <i>melanocyaneus</i> ...	318
<i>floridanus</i>	327, 330
<i>fuscus</i>	368
<i>luxuosus</i>	307, 308, 310, 311
<i>melanogaster</i>	353
<i>sordidus</i>	339, 340, 341, 343
<i>stelleri</i>	352, 356, 357
<i>ultramarinus</i>	330, 339
<i>garrulus</i> , <i>Ampelis</i>	104, 105, 106, 109, 110, 111
β	111
<i>Bombycilla</i>	109
<i>Lanius</i>	107, 109
<i>Turdus</i>	108
<i>Gazzola</i>	256
<i>typica</i>	256
<i>genibarbis</i> , <i>Thryothorus</i>	527
<i>geoffroyi</i> , <i>Cyanocitta</i>	317
<i>Cyanocorax</i>	314, 317
<i>Cyanurus</i>	314
<i>germana</i> , <i>Cyanocitta</i>	315
<i>germanica</i> , <i>Pica</i>	287
<i>gilva</i> , <i>Muscicapa</i>	154, 156
<i>Sylvia</i>	154
<i>Vireo</i>	155
<i>Vireosylva</i>	133
<i>gilva</i>	133, 134, 158, 155
<i>Vireosylva</i>	155, 157
<i>gilvus</i> , <i>Phyllomanes</i>	741
<i>Vireo</i>	142, 154, 155, 156
<i>gilvus a.</i>	155
<i>swainsoni a.</i>	155
<i>Vireosylva</i>	155
<i>gilvus var.</i>	155
<i>Giraud's Canyon Wren</i>	657
<i>glaucescens</i> , <i>Xanthoura luxuosa</i> 306, 307, 308, 309	
<i>Gnatcatcher</i> , <i>Bahama</i>	723
<i>Baird's</i>	729
<i>Black-tailed</i>	734
<i>Blue-gray</i>	716
<i>Bonaparte's</i>	726
<i>Cartago</i>	728
<i>Cuban</i>	735
<i>Lawrence's</i>	727
<i>Mexican</i>	722
<i>Nelson's</i>	724
<i>Nicaraguan</i>	726
<i>Plumbeous</i>	731
<i>Western</i>	720
<i>White-lored</i>	725
<i>Yucatan</i>	729
<i>Golden-crowned Kinglet</i>	700
<i>Western</i>	703
<i>Golden-throat Flycatcher</i>	166
<i>Golden Vireo</i>	201
<i>goldmani</i> , <i>Vireolanus melitophrys</i>	744, 745
<i>Goldman's Shrike-Vireo</i>	744
<i>gordonii</i> , <i>Hirundo</i>	77
<i>Gosse's Swallow</i>	101
<i>gouldi</i> , <i>Motacilla</i>	8
<i>gouldii</i> , <i>Hirundo</i>	87
<i>Gould's Wren</i>	618
<i>gracilis</i> , <i>Aphelocoma</i>	342
<i>Grand Cayman Vireo</i>	136

	Page.		Page.
<i>grandior</i> , <i>Vireosylva calldris</i>	131, 143	<i>gubernatrix</i> , <i>Garrula</i>	296, 298
<i>Vireosylva</i>	143	<i>Psittorhinus</i>	296
<i>grandis</i> , <i>Pheugopedius felix</i>	530, 537	<i>guerrerensis</i> , <i>Amphelocoma</i>	749, 750
<i>Thryothorus felix</i>	538	<i>Guerrero Jay</i>	749
Gray-breasted Martin	40	Wood Wren	616
-crowned Wood Wren	615	<i>gulanensis</i> , <i>Tanagra</i>	228
-headed <i>Pachysylvia</i>	216	<i>gularis</i> , <i>Campylorhynchus</i>	527
Jay	273	<i>Heleodytes</i>	501, 503, 520, 527
Titmouse	390	<i>Motacilla</i>	6
Vireo	202	<i>gundlachi</i> , <i>Vireo</i>	139
<i>grebnitzkii</i> , <i>Corvus</i>	257	<i>gundlachii</i> , <i>Vireo</i>	176, 177, 178, 189, 199
Green Flycatcher	184	<i>Gundlach's Vireo</i>	189
Jay	306	<i>guttata</i> , <i>Henicorhina guttata</i>	610
Guatemalan	310	<i>guttatus</i> , <i>Campylorhynchus</i>	517
Jaliscoan	311	<i>Heleodytes</i>	502, 516
Rio Grande	309	<i>Salpinctes</i>	644, 653
Tehuantepec	309	<i>Thryothorus</i>	517
Shrike-Vireo	223	<i>Troglodytes</i>	610
Green-winged Vireo	212	<i>guttulatus</i> , <i>Thryothorus</i>	656
Grenada Wren	592	<i>gutturalis</i> , <i>Hirundo</i>	95
<i>grenadensis</i> , <i>Thryothorus</i>	593	<i>Stelgidopteryx</i>	65
<i>Troglodytes</i>	572, 592, 593	<i>Gymnocitta</i>	283
<i>grinda</i> , <i>Aegithalos minimus</i>	436	<i>cianocephala</i>	285
<i>Psaltriparus</i>	426, 436	<i>Gymnokitta</i>	283
<i>minimus</i>	436	<i>cianocephala</i>	285
<i>Grinda's Bush-Tit</i>	436	<i>cianocephalus</i>	284
<i>grinnelli</i> , <i>Regulus calendula</i>	700, 709, 710	<i>Gymnorhinus</i>	233
<i>grisea</i> , <i>Amphelocoma</i>	325, 337, 338	<i>Gymnorhinus</i>	233
<i>griseicollis</i> , <i>Heterorhina</i>	615, 616	<i>cianocephalus</i>	283, 284
<i>Merulaxis</i>	615, 616		
<i>griselpes</i> , <i>Hylophilus</i>	216		
<i>Pachysylvia</i>	216, 743		
<i>griseascens</i> , <i>Parus</i>	396		
<i>cinctus</i> , <i>subsp.</i>	396		
<i>Poecila cincta</i>	396		
<i>griseus</i> , <i>Baeolophus inornatus</i> ...	381, 389, 390, 391		
<i>Cistothorus</i>	499		
<i>palustris</i>	498, 499		
<i>Furnarius</i>	500		
<i>Lophophanes inornatus</i>	391		
<i>var.</i>	391		
<i>Parus</i>	391, 709		
<i>inornatus</i>	391		
<i>Perisoreus obscurus</i>	366, 373, 374		
<i>Telmatorhynchus palustris</i>	488, 499		
Guadalupe Rock Wren	650		
Wren	657		
<i>guadalupensis</i> , <i>Salpinctes</i>	650, 661		
Guadeloupe Wren	595		
<i>guadeloupensis</i> , <i>Salpinctes obsoletus</i> ..	644, 650		
<i>Thryothorus</i>	595		
<i>Troglodytes</i>	572, 595		
Guatemalan Green Jay	310		
Marsh Wren	484		
<i>Ptilogonys</i>	117		
Spotted-breasted Wren	535		
<i>guatemalensis</i> , <i>Cyanocorax</i>	311		
<i>Xanthoura</i>	311		
<i>incas var.</i>	311		
<i>luxuosa</i>	311		
<i>var.</i>	311		
<i>Xanthura</i>	310		
<i>Xanthoura</i>	311		
<i>luxuosa</i>	306		
Guaymas Cactus Wren	517		
<i>gubernatrix</i> , <i>Cyanurus</i>	296, 298		

H.

Haitian Crow	279
Happy Wren	536
Hartlaub's Jay	317
Wren	539
<i>Heleodytes</i>	476, 477, 500
<i>affinis</i>	521
<i>albobrunneus</i>	501, 503, 504
<i>albo-brunneus</i>	504
<i>alticorvus</i>	514
<i>brunneicapillus</i>	502, 522, 524
<i>affinis</i>	503
<i>anthonyi</i>	519, 529, 521
<i>brunneicapil-</i>	
<i>lus</i>	502
<i>517, 519, 524</i>	
<i>bryanti</i>	503, 519, 520
<i>couesi</i>	503, 522, 524
<i>obscurus</i>	503, 521, 522
<i>capistratus</i>	506
<i>capistratus</i> ..	501, 504, 506
<i>nigricaudatus</i> ..	501, 506, 507
<i>chiapensis</i>	501, 504
<i>gularis</i>	501, 503, 526, 527
<i>humilis</i>	501, 508
<i>rufus</i>	509
<i>jocosus</i>	501, 503, 524
<i>megalopterus</i>	502, 513
<i>nelsoni</i>	502, 514, 516
<i>occidentalis</i>	527
<i>rufinucha</i>	501, 507, 508
<i>stridulus</i>	527
<i>zonatus</i>	502
<i>costaricensis</i> ..	502, 512
<i>restrictus</i>	502, 512, 513

	Page.		Page.
<i>Heleodytes zonatus zonatus</i>	502, 510	<i>hilaris, Henicorhina hilaris</i>	609
<i>Helina brevipennis</i>	218	<i>Hirundinidae</i>	23, 25, 68, 72, 76, 92, 98, 100
<i>helleri, Anorthura hiemalis</i>	602	<i>Hirundo</i>	25, 28, 45, 48, 76, 77
<i>Obiorchilus hiemalis</i>	596, 602	<i>albigula</i>	77
<i>Helminthos</i>	218	<i>albilinea</i>	91, 92
<i>helviventris, Psaltrites</i>	428, 432	<i>albiventer</i>	86
<i>hemipyga, Atticora</i>	69	<i>albiventris</i>	40, 87
<i>hemispha, Nucifraga</i>	280	<i>americana</i>	50, 76, 84, 85
<i>Hemiura</i>	617	<i>badia</i>	77
<i>brachyura</i>	620	<i>bicolor</i>	85, 88, 89
<i>leucogastra</i>	619	<i>var. vespertina</i>	90
<i>musca</i>	620	<i>boissoneaulti</i>	80
<i>pacifica</i>	619	<i>cærulea</i>	35
<i>Hemirurus</i>	617	<i>canadensis</i>	38
<i>Henicorhina</i>	479, 607	<i>cahirica</i>	30, 85
<i>anachoreta</i>	609	<i>(Callichelidon) cyaneoviridis</i>	100
<i>collina</i>	614	<i>capensis</i>	76
<i>guttata anachoreta</i>	610	<i>cayanensis</i>	42
<i>guttata</i>	610	<i>chalybea</i>	42
<i>hilaris</i>	610	<i>chalybea</i>	42
<i>hilaris</i>	609	<i>cinerea</i>	27, 76, 788
<i>anachoreta</i>	609	<i>concolor</i>	44
<i>bangsi</i>	610	<i>coronata</i>	52
<i>hilaris</i>	609	<i>cucullata</i>	76, 77
<i>inornata</i>	608	<i>cyaneoviridis</i>	98, 100
<i>leucophrys</i>	608, 609, 610, 614, 615, 616	<i>cyanoleuca</i>	68, 69, 70, 71
<i>berlepechi</i>	609	<i>cyanopyrrha</i>	84
<i>capitalis</i>	609, 615, 616	<i>domestica</i>	31, 43, 80
<i>castanea</i>	609, 616	<i>var</i>	85
<i>collina</i>	609, 613, 614, 615	<i>dominicensis</i>	38, 39, 43, 108
<i>festiva</i>	609, 616	<i>emini</i>	77
<i>leucophrys</i>	608	<i>erythrogaster</i>	77, 81
<i>mexicana</i>	609, 616	<i>β. horreorum</i>	83
<i>leucosticta</i>	608, 611, 612, 613	<i>var. horreorum</i>	83
<i>pittieri</i>	612, 613	<i>erythrogastra</i>	78, 80, 82, 84, 85
<i>prostheleuca</i>	607, 608, 611, 612	<i>horreorum</i>	84
<i>pittieri</i>	608, 611, 612	<i>palmeri</i>	84
<i>prostheleuca</i>	608, 610	<i>unalaschkensis</i>	84
<i>mexicana</i>	616	<i>erythropygia</i>	76
<i>henshawii, Chamæa fasciata</i>	686, 687, 689, 691	<i>euchrysa</i>	100, 740
<i>var</i>	691	<i>var. dominicensis</i>	100, 108
<i>Herse</i>	76	<i>fasciata</i>	27
<i>bicolor</i>	89	<i>flavigastra</i>	58, 64
<i>cyanoleuca</i>	71	<i>frontalis</i>	87
<i>fulva</i>	50, 54	<i>fucata</i>	26, 738
<i>lunifrons</i>	49	<i>fulva</i>	49, 52, 54, 55
<i>thalassina</i>	94, 97	<i>var. lunifrons</i>	49
<i>hesperia, Progne</i>	37	<i>fulvus</i>	49
<i>subis</i>	29, 30, 33, 35, 36	<i>fumaria</i>	84
<i>hesperia, Corvus americanus</i>	258, 270, 272	<i>fusca</i>	26
<i>Heterocnemis marginatus</i>	666	<i>gordonii</i>	77
<i>Heterocorax</i>	256	<i>gouldii</i>	87
<i>Heterorhina</i>	607	<i>gutturallis</i>	85
<i>griseicollis</i>	615, 616	<i>horreorum</i>	82, 83
<i>leucophrys</i>	608, 614	<i>a. erythrogaster</i>	82
<i>leucosticta</i>	608-613	<i>b. horreorum</i>	83
<i>prostheleuca</i>	611	<i>hyperythra</i>	77
<i>pusilla</i>	619	<i>japonica</i>	77
<i>hiemalis, Anorthura</i>	599-601	<i>javanica</i>	76, 77
<i>troglydotes</i>	599	<i>jugularis</i>	58
<i>Obiorchilus</i>	600	<i>leucogaster</i>	90
<i>hiemalis</i>	596, 597, 600	<i>leucogastra</i>	90
<i>Pica</i>	287	<i>leucoptera</i>	87, 91
<i>Troglydotes</i>	587, 598, 599, 600	<i>leucopygia</i>	92
<i>hilaris, Henicorhina</i>	609	<i>leucorrhæa</i>	87
<i>guttata</i>	610	<i>ludoviciana</i>	35

	Page.		Page.
<i>Hirundo lunifrons</i>	48, 49, 51, 52	<i>hudsonica</i> , <i>Pica pica</i> ♂	290
<i>melanogaster</i>	44, 52, 55	<i>pica</i> var	290
<i>melanogastra</i>	52	<i>rustica</i>	290
<i>melanoleuca</i>	27, 72, 73 ⁸	var	290
<i>mevni</i>	87	<i>hudsonicus</i> , <i>Cleptes</i>	29
<i>minuta</i>	71	<i>Parus</i>	37 ⁸
<i>modesta</i>	44	413, 414, 415, 416	
<i>montieri</i>	77	(Poecile) <i>hudsonicus</i> ..	414, 416
<i>nigricans</i>	44	<i>Penthestes hudsonicus</i>	296
<i>opifex</i>	49	412, 414, 415	
<i>patagonica</i>	69	<i>Pica</i>	29
<i>poeciloma</i>	55	<i>caudata</i> var	290
<i>prasina</i>	90	<i>hudsonius</i> , <i>Corvus</i>	29 ⁸ , 29
<i>puella</i>	77	<i>Pica pica</i>	747
<i>purpurea</i>	28, 34, 35, 36, 37, 43	<i>Huitzilac Cactus Wren</i>	513
<i>pyrrhonota</i>	50, 51	<i>humilis</i> , <i>Camphylorhynchus</i>	509
<i>republicana</i>	49	<i>Heleodytes</i>	501, 504
<i>riparia</i>	72, 74	<i>huttoni</i> , <i>Vireo</i>	178, 195, 196, 197, 212
<i>americana</i>	76	<i>huttoni</i>	179, 195, 196, 197
<i>rufa</i>	83, 85	(Laniivireo)	196
<i>ruficollis</i>	58, 64	<i>Vireosylvia</i>	197
<i>rufocollaris</i>	46	<i>huttoni</i> , <i>Vireo</i>	196, 197
<i>rufula</i>	77	<i>Hutton's Vireo</i>	195
<i>rustica</i>	76, 77, 78, 79, 80, 82, 84, 85	<i>hyacinthinus</i> , <i>Cyanocorax</i>	308
<i>erythrogastra</i>	83	<i>Hydrichia</i>	676
var. <i>horreorum</i>	84	<i>Hydrobata</i>	676
<i>rufa</i>	85	<i>albicollis</i>	676
<i>saturata</i>	85	<i>ardesiaca</i>	682
<i>scelateri</i>	108	<i>mexicana</i>	679, 681
<i>serripennis</i>	56, 59, 62, 63	<i>unicolor</i>	681
<i>subis</i>	28, 33, 36, 38	<i>hydrophilus</i> , <i>Cinclus</i>	676
<i>tahitica</i>	76	<i>hyemalis</i> , <i>Anorthura</i>	599
<i>taitensis</i>	76	<i>parvulus</i> var	601
<i>thalassina</i>	92, 94, 96, 97, 98, 740	<i>troglydytes</i>	599, 601
<i>thalassinus</i>	94, 98	var ..	599, 600, 601
<i>tytleri</i>	77, 78, 84, 85	<i>hyema-</i>	
<i>unalaschensis</i>	84	<i>lis b.</i>	599
<i>versicolor</i>	35	601	
<i>violacea</i>	35	<i>Troglodytes</i>	587
<i>viridis</i>	90	(Poecile)	589, 590
<i>hispaniolensis</i> , <i>Turdus</i>	139	<i>hyemalis</i> var	599
<i>Hooded Cactus Wren</i>	504	<i>parvulus</i>	600
<i>horreorum</i> , <i>Hirundo</i>	82, 83	var ..	599, 600, 601
<i>erythrogaster</i> , ♂	83	<i>hylebata</i> , <i>Phylloscopus</i>	686
var	83	<i>Hyemathous</i>	589, 590
<i>erythrogastra</i>	84	<i>aedon</i>	581
<i>horreorum b.</i>	83	<i>americanus</i>	582
<i>rustica</i> , var	84	<i>brunnei-collis</i>	587
<i>House Wren</i>	579	<i>platensis</i>	481
Costa Rican	576	<i>Hylochelidon</i>	44, 45
Oaxaca	578	<i>Hylophila</i>	214
Panama	575	<i>Hylophilus</i>	214
Western	582	<i>acuticauda</i>	216
<i>huttoni</i> , <i>Vireo</i>	742	<i>aurantifrons</i>	215, 216, 220
<i>hudsonia</i> , <i>Pica pica</i>	287, 291	<i>cinericeps</i>	218
<i>Hudsonian Chickadee</i>	412	<i>decurtatus</i>	218
Wagtail	15	<i>flavipes</i>	216, 221
<i>hudsonica</i> , <i>Motacilla</i>	15	β	221
<i>Pica</i>	289	<i>viridiflavus</i>	221
<i>caudata</i>	290	<i>griselpes</i>	216
<i>caudata</i> var	290	<i>hypoxanthus</i>	215, 220, 221
<i>melanoleuca</i>	290	<i>insularis</i>	215, 216
var	289, 290	<i>ochraceiceps</i>	219, 220
var. <i>hudson-</i>		<i>plumbiceps</i>	218
<i>ica b.</i>	290	<i>pustillus</i>	218
<i>pica</i>	290, 291	<i>thoracicus</i>	214

	Page.
<i>Hylophilus viridiflavus</i>	221
<i>Hylorhynchus</i>	474, 476, 479, 663
<i>sumichrasti</i>	665
<i>hypædon</i> , <i>Troglodytes</i>	571, 576, 579
<i>intermedius</i>	571
<i>musculus</i>	571, 578, 579
<i>hyperythra</i> , <i>Hirundo</i>	77
<i>hyperythrus</i> , <i>Pheugopedius</i>	529, 533
<i>Thryophilus</i>	534
<i>Thryothorus</i>	534
<i>rutilus</i>	534
<i>Hyperperes corallirostris</i>	439
<i>hypochryseus</i> , <i>Vireo</i>	177, 201, 202, 212
<i>hypochryseus</i>	179, 201, 202
<i>hypogæus</i> , <i>Anthus</i>	15
<i>hypoleuca</i> , <i>Aphelocoma californica</i>	324, 331
<i>Hypositta</i>	377, 489
<i>Hyposittidae</i>	439
<i>Hypothymis chrysorhoa</i>	117
<i>mexicanus</i>	117
<i>hypoxantha</i> , <i>Pachysylvia aurantifrons</i>	215
<i>hypoxanthus</i>	220
<i>Hylophilus</i>	215, 220, 221
<i>Hypurolepis</i>	76
I.	
<i>Icteria virens</i>	166
<i>ignotus</i> , <i>Parus</i>	19
<i>iliacus</i> , <i>Telmatodytes palustris</i>	488, 490, 492, 494
<i>immanis</i> , <i>Aphelocoma californica</i>	330
<i>immanis</i> , <i>Aphelocoma californica</i>	328
<i>impiger</i> , <i>Parus carolinensis</i>	407
<i>Penthestes carolinensis</i>	396, 406
<i>infaustus</i> , <i>Corvus</i>	365, 750
<i>Lanius</i>	364
<i>Perisoreus</i>	365
<i>inornata</i> , <i>Henicorhina</i>	606
<i>inornatus</i> , <i>Baeolophus</i>	380, 381
<i>inornatus</i>	381, 387, 389
<i>Lophophanes</i>	388, 389, 390, 391
<i>inornatus</i> , var.	389
<i>Parus</i>	388, 389, 390, 751
(<i>Baeolophus</i>) <i>inornatus</i>	389, 390
<i>inornatus</i>	388, 389, 390
<i>inquietus</i> , <i>Troglodytes</i>	571, 576, 578
<i>musculus</i>	570,
571, 575, 576	
<i>striatulus</i>	571
<i>insulanna</i> , <i>Vireo</i>	147
<i>Vireosylva</i>	132, 147
<i>insularis</i> , <i>Aphelocoma</i>	324, 331, 332
<i>Cyclarhis</i>	227, 230
<i>Hylophilus</i>	215, 216, 220
<i>Pachysylvia</i>	216
<i>Thryomanes</i>	548, 549, 551, 564, 569
<i>Troglodytes</i>	568-669
<i>domesticus</i> , subsp. <i>y.</i>	
<i>Troglodytes</i>	569
<i>Vireo huttoni</i>	196
<i>intermedia</i> , <i>Chamaea fasciata</i>	687, 688, 689
<i>Intermediate Canyon Wren</i>	660
<i>intermedius</i> , <i>Anthus</i>	20
<i>Troglodytes</i>	571, 577, 578, 579
<i>furvus</i>	578
<i>intermedius</i>	571, 578
<i>musculus</i>	571,
576, 578	

	Page.
<i>intercapularis</i> , <i>Cistothorus</i>	481
<i>Turdus</i>	481
<i>invictus</i> , <i>Lanius borealis</i>	241
<i>Irazu Wren</i>	590
<i>Iridoprocne</i>	28, 85, 93
<i>albilinea</i>	85, 86, 78, 90
<i>albiventris</i>	86
<i>bicolor</i>	85, 86, 87, 90, 96
<i>leucoptera</i>	85, 86
<i>leucorhoa</i>	85, 87
<i>meyeni</i>	85, 86, 87
<i>lulus</i> , <i>Aegithalos melanotis</i>	428
<i>Psaltiriparus melanotis</i>	425, 428, 429

J.

<i>Jalisco Green Jay</i>	811
<i>Jalisco Wren</i>	560
<i>Jamaican Cliff Swallow</i>	54
<i>Crow</i>	277
<i>Vireo</i>	137, 200
<i>jamaicensis</i> , <i>Corvus</i>	256, 257, 258, 276, 277, 278
<i>Microcorax</i>	277
<i>Muscicapa</i>	149
<i>japonica</i> , <i>Ampelis</i>	105
<i>Bombcylvora</i>	105
<i>Hirundo</i>	77
<i>japonicus</i> , <i>Ampelis</i>	105
<i>Anthus</i>	18
<i>pratensis</i>	18
<i>javanica</i> , <i>Hirundo</i>	76, 77
<i>Jay</i> , <i>Acapulco</i>	814
<i>Alaska</i>	369
<i>Arizona</i>	334
<i>Aztec</i>	361
<i>Azure-hooded</i>	322
<i>Beechey's</i>	316
<i>Belding's</i>	330
<i>Black-headed</i>	357
<i>Blue</i>	347
<i>Blue-cheeked</i>	335
<i>Blue-crested</i>	362
<i>Blue-gray</i>	337
<i>Brown</i>	299
<i>California</i>	327
<i>Canada</i>	366
<i>Central American Brown</i>	301
<i>Cerulean</i>	345
<i>Colima</i>	339
<i>Couch's</i>	342
<i>Dwarf</i>	320
<i>Florida</i>	326
<i>Blue</i>	350
<i>Gray</i>	377
<i>Green</i>	306
<i>Guerrero</i>	749
<i>Hartlaub's</i>	317
<i>Jalisco Green</i>	811
<i>Labrador</i>	368
<i>Long-crested</i>	358
<i>Omitteme</i>	748
<i>Oregon</i>	372
<i>Osgood's</i>	354
<i>Pifion</i>	284
<i>Rio Grande Green</i>	308
<i>San Blas</i>	313
<i>San Luis Potosi</i>	340

	Page.
Jay, Santa Cruz	331
Sieber's	338
Sierra Nevada	355
Silvery-throated	319
Sooty	300
Steller's	351
Strickland's	321
Sumichrasi's	336
Talamanca	304
Tehuantepec Green	309
Texan	337
Ultramarine	343
Unicolored	344
White-headed	370
White-tipped Brown	301
Woodhouse's	333
Xantus'	331
Yucatan	315
Brown	303
Zacatecas	341
Jocosus, Campylorhynchus	525, 526
Heleodytes	501, 503, 524
Jolyssa, Cyanolyca	318
Josephæ, Vireo	134, 159, 160, 161
Vireosylva	134
josephæ	134, 159
Vireosylva	160, 161
gilva var.	134, 159, 160
Jouy's Bush-Tit	428
Jugularis, Hirundo	58
K.	
Kadiak Wren	602
Kalochelidon	100
Kamchatkan Barn Swallow	84
Kampylorhynchus	500
Kampylorhynchus	500
kamtschatica, Motacilla	3
kennicottii, Acanthopneuste borealis	696
Phyllopneuste	696, 697
Phyllopseustes borealis	697
Key West Vireo	186
Kinglet, Cuvier's	704
Dusky	710
Golden-crowned	700
Ruby-crowned	705
Sitka Ruby-crowned	709
Western Golden-crowned	702
L.	
Labrador Jay	368
lætus, Pheugopedius	529
Thryothorus	529
Lagenoplastes	44, 45
laguna, Sitta carolinensis	440, 446, 447
lahora, Lanius	235, 236, 237
Laletes	129, 130, 212, 213
osburni	213, 214
osburnii	214
lamprocephalus, Anthoscopus flaviceps	423
Auriparus flaviceps. 421, 422, 423	
Lamprochelidon	28, 100, 740
euchrysea	101
sclateri	101
Laniagra	226
Laniidæ	232, 234

	Page.
<i>Laninus</i>	233
<i>Lanius</i>	232, 234
<i>agilis</i>	132, 146, 147
<i>algeriensis</i>	237
<i>americanus</i>	243
<i>ardosiaceus</i>	243
<i>bairdi</i>	237
<i>borealis</i>	235, 237, 239, 240
<i>americanus</i>	240
<i>europæus</i>	235
<i>invictus</i>	241
<i>sibiricus</i>	235
<i>bucephalus</i>	234
<i>carolinensis</i>	243, 249
<i>collaris</i>	234
<i>cristatus</i>	234
<i>elegans</i>	226, 237, 250
<i>excubitor</i>	234, 239
<i>forma borealis</i>	240
<i>forma major</i>	235
<i>excubitorides</i>	237, 239, 243, 250
<i>excubitorides</i>	244, 247
<i>excubitoroides</i>	244, 247, 249
<i>excubitroides</i>	244, 251
<i>garrulus</i>	107, 109
<i>β</i>	111
<i>infans</i>	264
<i>lahtora</i>	235, 236, 237
<i>ludovicianus</i>	235, 237, 242, 243, 245, 248, 249
<i>anthonyi</i>	236
<i>ardosiaceus</i>	242
<i>excubitorides</i>	236,
245, 248, 247, 248, 249	
<i>b. excubitorides</i>	245
<i>excubitorides b. excu-</i>	
<i>bitorides</i>	247
<i>excubitorides a. ludo-</i>	
<i>vicianus</i>	243
<i>excubitoroides</i>	248
<i>gambelli</i>	236, 249
<i>ludovicianus</i>	235,
241, 242, 243, 244, 245	
<i>a ludovicianus</i>	242
<i>mearnsi</i>	236, 245
<i>mexicanus</i>	236, 248
<i>migrans</i>	236, 248, 246, 249
<i>robustus</i>	237
<i>ludovicus</i>	243
<i>major</i>	235, 241
<i>mexicanus</i>	249
<i>novembraensis</i>	185
<i>nubicus</i>	234
<i>olivaceus</i>	149
<i>robustus</i>	237
<i>rufus</i>	234
<i>septentrionalis</i>	240
<i>sibiricus</i>	235
<i>solitarius</i>	169
<i>Lanivireo</i>	129, 130, 161, 213
<i>cassini</i>	174
<i>crassirostris</i>	190
<i>flavifrons</i>	162, 163, 166, 167
<i>plumbea</i>	171
<i>plumbeus</i>	171
<i>propinquus</i>	163, 166
<i>solitaria var. cassini</i>	174

	Page.		Page.
<i>Lanivireo solitaria plumbea</i>	172	<i>leucogaster</i> , <i>Troglodytes bewickii</i> , var.	558
var. <i>plumbea</i>	171, 172	<i>leucogaster</i> , <i>Hemilura</i>	619
<i>solitaria</i>	174	<i>Hirundo</i>	90
<i>solitarius</i>	163, 167, 169, 174	<i>Polioptila</i>	714, 715, 716, 726
<i>alticola</i>	163, 169, 170	<i>Progne</i>	43
<i>cassinii</i>	174, 175	<i>Sylvia</i>	710, 714, 715, 726
<i>β. cassinii</i>	174	<i>Troglodytes</i>	556, 558, 560, 617, 619
var. <i>cassinii</i>	174	<i>Uropelia</i>	619
<i>cassinii</i>	163, 172, 175	<i>leucognaphalus</i> , <i>Corone</i>	279
<i>lucasanus</i>	163, 175	<i>Corvus</i>	257, 258, 279
<i>plumbeus</i>	163, 170, 172	<i>leucognaphalus</i> ...	278
var. <i>plumbeus</i>	172	<i>Microcorax</i>	279
<i>propinquus</i>	167	<i>leucognaphilus</i> , <i>Corvus</i>	279
<i>solitarius</i>	163	<i>Leucolepis</i>	670
.....	166, 167, 169, 172	<i>Leucolepis</i>	473, 474, 476, 479, 670
var. <i>solitarius</i>	169	<i>brunnescens</i>	672
<i>lapponicus</i> , <i>Parus</i>	396	<i>dichrous</i>	672
<i>Large-billed Vireo</i>	189	<i>lawrencii</i>	672, 673
Yellow	191	<i>modulator</i>	672, 673
<i>Lark, Red</i>	15	<i>phaecephalus</i>	672, 673
<i>latimeri</i> , <i>Vireo</i>	180, 210, 211	<i>brunnescens</i>	673
<i>Latimer's Vireo</i>	210	<i>lawrencii</i>	673
<i>lawrencii</i> , <i>Cyphorhinus</i>	674	<i>phaecephalus</i> ...	673
<i>Phlegopedius felix</i>	589, 588	<i>salvini</i>	672, 673
<i>Lawrence's Gnatcatcher</i>	727	<i>thoracicus</i>	671, 673
<i>Muscicla Wren</i>	673	<i>dichrous</i>	673
<i>Pachysylvia</i>	220	<i>thoracicus</i>	673
<i>Wren</i>	588	<i>Leucemstopon</i>	234
<i>lawrencii</i> , <i>Cyphorhinus</i>	674	<i>leuconotus</i> , <i>Cinclus</i>	677
<i>Cyphorhinus</i>	674	<i>leuconucha</i> , <i>Sitta pygmaea</i>	441, 459
<i>Leucolepis</i>	672, 673	<i>leucephrys</i> , <i>Cyphorhinus</i>	608, 614
<i>phaecephalus</i>	673	<i>Henicorhina</i>	608, 609, 610, 614, 615, 616
<i>Thryothorus</i>	589	<i>leucophrys</i>	608
<i>felix</i>	589	<i>Heterorhina</i>	608, 614
<i>β</i>	589	<i>Thryomanes</i>	563
<i>Least Vireo</i>	206	<i>bewickii</i>	550, 563
<i>Leimoniptera</i>	10	<i>Thryothorus</i>	563
<i>pratensis</i>	10	<i>Troglodytes</i>	608, 609, 610, 614, 615, 616
<i>Leimoniptila</i>	10	<i>leucoptera</i> , <i>Hirundo</i>	87
<i>lembeyi</i> , <i>Culicivora</i>	736	<i>Iridoprocne</i>	85, 86
<i>Polioptila</i>	716, 735	<i>Motacilla</i>	3
<i>lembeyi</i> , <i>Polioptila</i>	736	<i>Petrochelidon</i>	91
<i>lembeyi</i> , <i>Culicivora</i>	736	<i>leucopygia</i> , <i>Hirundo</i>	92
<i>Polioptila</i>	736	<i>leucorrhoea</i> , <i>Hirundo</i>	87
<i>lepidi</i> , <i>Tachycineta</i>	98	<i>Iridoprocne</i>	85, 87
<i>thalassina</i>	93, 95, 98	<i>leucorrhous</i> , <i>Tachycineta</i>	87
<i>Lepturus galeatus</i>	123	<i>leucosticta</i> , <i>Henicorhina</i>	608, 611, 612, 613
<i>Lesser Cliff Swallow</i>	50	<i>Heterorhina</i>	608, 613
Cuban Crow	276	<i>leucostictus</i> , <i>Cyphorhinus</i>	608, 611, 613
<i>leucocephalus</i> , <i>Cinclus</i>	677	<i>Cyphorhinus</i>	612, 613
<i>leucogaster</i> , <i>Hirundo</i>	90	<i>Microcerculus</i>	613
<i>Nannorchilus</i>	556	<i>Thryothorus</i>	613
<i>leucogaster</i>	618	<i>Troglodytes</i>	608
<i>Progne</i>	43	<i>leucostria</i> , <i>Budytes</i>	8
(subis var?)	43	<i>leucostriatus</i> , <i>Budytes</i>	8, 10, 737
<i>Thryothorus</i>	558	<i>flavus</i>	8, 9, 10, 737
<i>Thryomanes bewickii</i>	556, 558, 560	<i>leucotis</i> , <i>Thryothorus</i>	638
var.	556, 558	<i>Thryophilus</i>	638
<i>leucogas-</i>		<i>Thryothorus</i>	640
<i>ter b</i>	556	<i>lichtensteini</i> , <i>Anthus</i>	20
<i>bewickii</i>	556, 558	<i>Mentarius</i> , <i>Ampelis</i>	109
<i>Thryothorus</i>	556, 558	<i>Lilia</i>	76
<i>bewickii</i>	556, 558	<i>Linnernis canifrons</i>	477
<i>bewickii</i>	556	<i>unirufa</i>	477
<i>b</i>	556, 558, 560	<i>Limnidromus</i>	11
var.	558, 560	<i>Mniotilta</i> , <i>Anthus</i>	10

	Page.		Page.
<i>littoralis</i> , <i>Cyanocitta stelleri</i>	353, 750	<i>ludovicianus</i> , <i>Thryothorus</i> ...	543, 545, 546, 547, 548
<i>littoralis</i> , <i>Corvus</i>	260	<i>ludovicianus</i>	541,
<i>corax</i> var.....	260		543, 545, 546
<i>Parus hudsonicus</i>	414, 416	<i>ludovicianus</i> a.....	545
var.....	416	<i>ludovicianus</i> , var.....	545
<i>Penthestes hudsonicus</i>	396, 415	<i>Troglodytes</i>	543
<i>Thryothorus</i>	515	<i>ludovicus</i> , <i>Lanius</i>	243
<i>littorea</i> , <i>Petrochelidon</i>	92	<i>ludovidana</i> , <i>Motacilla</i>	543
<i>lloydi</i> , <i>Aegithalos</i>	430	<i>lugens</i> , <i>Motacilla</i>	27
<i>Psaltriparus</i>	430	<i>alba</i> , var.....	7
<i>melanotis</i>	425, 429, 430	<i>lugubris</i> , <i>Corvus</i>	280
Lloyd's Bush-Tit.....	429	<i>lunifrons</i> , <i>Herpe</i>	49
Loggerhead Shrike.....	241	<i>Hirundo</i>	48, 49, 51, 52
Northern.....	243	<i>fulva</i> , var.....	49
Lomita Wren.....	547	<i>Petrochelidon</i>	46, 49, 51, 52
<i>lomitensis</i> , <i>Thryothorus ludovicianus</i> ..	541, 547,	<i>lunifrons</i>	46, 47, 50, 52
	548	<i>Luscinia americana</i>	139
Long-billed Marsh Wren.....	489	<i>luscini</i> , <i>Microcerculus</i>	666, 669, 670
Long-crested Jay.....	358	<i>lutescens</i> , <i>Anthus</i>	22
Long-tailed Chickadee.....	399	<i>luteus</i> , <i>Parus</i>	8
<i>longicauda</i> , <i>Motacilla</i>	3	<i>luxuosa</i> , <i>Cyanocitta</i>	307
<i>longirostris</i> , <i>Thryothorus</i>	634	<i>Xanthocitta</i>	308
<i>Troglodytes</i>	634	<i>Xanthoura</i>	306, 308, 310
<i>Vireo</i>	139, 141, 142	<i>incas</i> , var.....	309
<i>Lophocorax</i>	345	<i>luxuosa</i>	306, 308
<i>diadematus</i>	369, 750	var.....	309
<i>stelleri</i>	363	<i>yncas</i> var.....	309
<i>Lophophanes</i>	378, 379, 380	<i>Xanthura</i>	307, 309, 310, 311
<i>atricristatus</i>	385, 387	<i>yncas</i> var.....	309
<i>atrocristatus</i>	386, 387	<i>luxuosus</i> , <i>Cyanocorax</i>	307, 308, 309, 310, 311
<i>bicolor</i>	383, 384, 391	<i>Garrulus</i>	307, 308, 310, 311
var. <i>missouriensis</i>	384	<i>Xanthoura</i>	307
<i>cristatus</i>	378, 380	<i>luxuriosa</i> , <i>Xanthura</i>	309
<i>dichrous</i>	380	M.....	
<i>galeatus</i>	393, 751	<i>Macrocorax</i>	256
<i>inornatus</i>	398, 399, 390, 391	<i>macrolopha</i> , <i>Cyanocitta</i>	260
<i>cineraceus</i>	392	<i>stelleri</i>	359, 360, 361
<i>griseus</i>	391	<i>Cyanura</i>	356, 360
var. <i>griseus</i>	391	<i>coronata</i> var.....	360
<i>inornatus</i>	389	<i>stelleri</i>	369
<i>missouriensis</i>	384	var.....	360
<i>septentrionalis</i>	400	<i>Cyanurus stelleri</i> var.....	356, 360
<i>wolweberi</i>	394	<i>macrolophus</i> , <i>Cyanura</i>	362
<i>wollweberi</i>	398, 394	<i>Cyanurus</i>	360
<i>lotor</i> , <i>Motacilla</i>	6	<i>stelleri</i> var.....	360
Louisiana Marsh Wren.....	498	<i>macro-</i>	
<i>louisiana</i> , <i>Thryothorus</i>	545	<i>lophus</i> c.....	360
<i>lucasana</i> , <i>Vireo solitarius</i> var.....	176	<i>stelleri</i> var.....	360
<i>lucasanus</i> , <i>Lanius solitarius</i>	163, 175, 176	<i>Macronyx</i>	11
<i>lucidus</i> , <i>Cistothorus polyglottus</i>	481, 486	<i>maculatus</i> , <i>Salpinctes</i>	644, 641, 642
<i>ludoviciana</i> , <i>Alauda</i>	14	<i>maculipectus</i> , <i>Pheugopedius</i>	535, 536
<i>Anthus</i>	15	<i>maculipe-</i>	
<i>Hirundo</i>	35	<i>tus</i>	529, 534
<i>Sylvia</i>	539, 543, 546, 547	<i>Thryothorus</i>	535, 536
<i>ludovicianus</i> , <i>Anthus</i>	14, 15	<i>Troglodytes</i>	535
<i>spinoletta</i> , var.....	15	<i>Magdalena Island Wren</i>	639
<i>Collurio</i>	237, 243, 245	<i>magdalense</i> , <i>Pheugopedius felix</i>	530, 539
<i>Collyrio</i>	243, 246, 248	<i>Thryothorus lawrencii</i>	539
<i>Lanius</i>	235, 237, 242, 243, 245, 248, 249	<i>magister</i> , <i>Vireo</i>	135, 136
<i>Lanius ludovicianus</i>	235,	<i>Vireosylva magister</i>	131, 134, 135
241, 242, 243, 244, 248		<i>Vireosylva</i>	135
<i>ludovicianus</i> a.....	242	<i>magna</i> , <i>Polioptila supercilialis</i>	716, 728, 729
<i>excubi-</i>		<i>Magpie</i> , American.....	297
<i>torides</i> a.....	243	Yellow-billed.....	291
<i>Phryothorus</i>	545	Jay, Bullock's.....	296
<i>Thryophilus</i>	545		

	Page.		Page.
Magpie-Jay, Central American	296	melanogaster, Petrochelidon	52
Collie's	294	lunifrons	46,
maillhardorum, Vireo	743	47, 50, 51	
huttoni	743	Pheugopedius fasciato-ven-	
major, Corvus	263	tris	529, 532
Lanius	235, 241	Thryothorus	533
Parus	378, 379	fasciatoventris	533
Motacilla	6	fasciatoventris	533
Malaconotinae	233	melanogastra, Hirundo	52
mancipium, Tanagra	127	Petrochelidon	52
Mangrove Swallow	90	lunifrons	58, 738
Wren	574	melanoleuca, Hirundo	27, 72, 738
margaritæ, Polioptila	733	Pica	287, 291
marginatus, Heterocnemis	666	melanope, Motacilla	2, 3
Microcerculus	666	melanotis, Acredula	428
mariae, Bombycilla	112	Aegithaliscus	427
marianæ, Cistothorus	498, 499	Parus	427, 430
palustris	498, 499	Poecila	427
Telmatodytes palustris	488, 497, 753	Psaltria	427
Trogodytes ædon	586	Psaltriparus	427, 428, 430
Marian's Marsh Wren	497	melanotis	425, 426, 428
maritimus, Corvus	275	Psaltrites	752
Marsh Wren, California	496	melanotus, Parus	427
Guatemalan	484	melanoxantha, Phainoptila	123, 124
Long-billed	489	melanura, Polioptila	734, 735
Louisiana	498	meligera, Anorthura	605
Marian's	497	meligerus, Olbiorchilus	597, 604, 605
Panama	486	Meliphaga mystacalis	460
Prairie	492	melitophrys, Vireolanius	221, 223, 225, 226, 745
Short-billed	482	melodia, Muscicapa	155
Western	494	meridana, Cyanolyca	318
Worthington's	499	meridionalis, Parus	408
Martin, Caribbean	38	Poecile	752
Cuban	37	Merula dominicensis	139
Galapagos	43	Merulaxis griseicollis	615, 616
Gray-breasted	40	mesoleucus, Thryothorus	591
Purple	31, 34	Trogodytes	572, 591
Sinaloa	40	Mexican Cactus Wren	521
Western	35	Canyon Wren	655
martinicensis, Thryothorus	594	Chickadee	407
Trogodytes	572, 593, 594	Creeper	471
Martinique Wren	593	Crow	275
maximiliani, Chivicola riparia	76	Dipper	677
maynardi, Vireo noveboracensis	178, 186, 189	Gnatcatcher	722
Meadow Pipit	18	Nuthatch	448
mearnsi, Lanius ludovicianus	236, 745	Pepper-Shrike	228
medius, Vireo bellii	180, 206, 207	Ptilogonys	115
megalopterus, Campylorhynchus	514, 516	Raven	262
Heleodytes	502, 513	Rock Wren	648
megonyx, Corvus	283	Shrike	248
Melaniparus niger	378	Violet-green Swallow	98
melanocephala, Sitta	443, 453	Vireo	196
Melanochlora	378	Wood Wren	616
sultaneus	378	mexicana, Certhia	468, 469, 470, 472, 473
melanocyanea, Cissolopha	312, 313, 317	familiaris	469, 470, 472, 473
Cissolopha	318	var.	472
Cyanocitta	318	subsp. a. Cer-	
Cyanolyca	318, 747	thia	469, 472
Xanthura	318	Cinclus	681
melanocyaneus, Cyanocitta	318	Corone	276, 746
Cyanocorax	318	Culicivora	722, 733
Cyanurus	318	Henicorbhina	616
Garrulus (Cyanocorax)	318	leucophrys	609, 616
melanogaster, Garrulus	353	Hydrobata	679, 681
Hirundo	44, 52, 55	Polioptila	722

	Page.		Page.
mexicana, <i>Polioptila caerulea</i>	722	minutus, <i>Coloemus</i>	277
<i>caerulea</i>	713,	<i>Corvus</i>	257, 258, 276, 277
715, 718, 722, 724		mirabilis, <i>Cyanolyca</i>	743
<i>caerulea</i>	722	missouriensis, <i>Lophophanes</i>	334
Sitta carolinensis	440, 448, 450	bicolor var	334
mexicanus, <i>Catherpes</i>	656, 657, 658, 660, 662	mitrata, <i>Cyanolyca</i>	319, 322, 323
var. <i>Catherpes</i>	659	Mniotilta ochroleuca	166
<i>Catherpes mexicanus</i>	654, 655, 656	modesta, <i>Hirundo</i>	44
var.	656, 657	<i>Progne</i>	30, 31, 43, 44
Cinclus	678, 679, 680, 681	modestus, <i>Progne</i>	44
mexicanus	676, 677	<i>Regulus</i>	695
var	679, 681	<i>Thryophilus</i>	624, 640, 641
Corvus	256, 258, 275, 276	modestus	624,
Cyphorhinus	656	639, 640, 641	
Hypothymis	117	<i>Thryothorus</i>	640, 641, 642
Lanius	249	<i>Troglodytes</i>	640
ludovicianus	236, 248	<i>Vireo</i>	179, 200, 201
Psittorhinus	298, 300, 301, 302, 303	modulator, <i>Cyphorhinus</i>	672
mexicanus	298, 301	<i>Leucolepis</i>	672, 673
Salpinctes	656	<i>Thryothorus</i>	672
Thryothorus	653, 656, 657, 658, 659, 662	molybdophanes, <i>Ptiliogonys cinereus</i>	118
Troglodytes	656, 658, 659, 662	<i>Ptiliogonys cinereus</i>	115, 117
Trogon	607	montana, <i>Atticora cyanoleuca</i>	72
Vireo huttoni	179, 196, 198, 742	var	72
meyeni, <i>Hirundo</i>	87	<i>Certhia</i>	468
Iridoprocne	85, 86, 87	familiaris	463, 467, 468
Petrochelidon	87	<i>Poecile</i>	410
Tachycineta	87	montanellus, <i>Anthus</i>	20
miamensis, <i>Thryothorus</i>	546	montanus, <i>Parus</i>	409, 410
ludovicianus	541, 542,	cinereus	409
545, 546		monticola, <i>Troglodytes</i>	572
var	546	monticolus, <i>Cichlops</i>	10
miamiensis, <i>Thryothorus ludovicianus</i>	546	montieri, <i>Hirundo</i>	77
Microcerculus	476, 479, 665	Morelos Wren	537
acentetus	670	morio, <i>Corvus</i>	299
corrasus	666	<i>Pica</i>	299, 300, 301, 302
daulias	666, 668, 669	Psittorhinus	298, 299, 300
leucostictus	613	morio	298, 299, 300, 301, 302
luscina	666, 669, 670	mortoni, <i>Cinclus</i>	681
marginatus	666	Motacilla	2, 3, 7, 11
orpheus	668, 669	alba	2, 3, 4, 5, 6
pectoralis	666	subsp. <i>ocularis</i>	7
philomela	666, 667, 670	var. <i>lugens</i>	7
squamulatus	666	albeola	5
Microchelidon	67	amurensis	3
tibialis	68	baicalensis var. <i>temporalis</i>	7
Microcorax	256, 257	blakistoni	3
jamalcensis	277	brachyrhynchos	6
leucognathus	279	caerulea	715
nasios	746	caerulea	710-718, 720, 723
solitarius	276	calendula	698-707, 709
Micropodidae	24	calidris	189, 141, 143
microrhynchos, <i>Cotyle</i>	76	cana	730
micrus, <i>Vireo noveboracensis</i>	178, 186, 187	cervicalis	6
migrans, <i>Lanius ludovicianus</i>	236, 243, 246, 249	cervina	17
minima, <i>Acredula</i>	432	chrysogastra	8
<i>Psaltia</i>	433, 435	cinerea	5
minimus, <i>Aegithalos minimus</i>	434, 435	fasciata	6
<i>Parus</i>	431, 433, 434, 435	flava	7, 8, 10
<i>Poecila</i>	433	vulgaris	8
<i>Psaltiriparus</i>	426, 431, 433, 434, 435, 684	flaveola	8
minimus	426, 432, 434, 435	flavescens	8
<i>Psaltrites</i>	752	furf	576, 578, 581
minor, <i>Sitta</i>	455	gouldi	8
carolinensis	455	gularis	6
minuta, <i>Hirundo</i>	71	hudsonica	15

	Page.		Page
<i>Motacilla kamtschatica</i>	3	<i>nana</i> , <i>Cyanolyca</i>	818, 819, 820, 821, 324, 748
<i>leucoptera</i>	3	<i>Garrulina</i>	749
<i>longicauda</i>	3	<i>nanus</i> , <i>Cyanocitta</i>	321
<i>lotor</i>	6	<i>Cyanocorax</i>	321, 322
<i>ludovisiana</i>	548	<i>Cyanurus</i>	321
<i>lugens</i>	3, 7	<i>Virco</i>	179, 204
<i>major</i>	6	<i>Nannorchilus</i>	479, 617
<i>melanope</i>	2, 3	<i>leucogaster</i>	556
<i>neglecta</i>	8	<i>brachyurus</i>	618, 620
<i>ocularis</i>	3, 6, 7	<i>leucogaster</i>	618
<i>proregulus</i>	695	<i>musicus</i>	618, 620
<i>regulus</i>	698-701	<i>pacificus</i>	618, 619
<i>septentrionalis</i>	6	<i>Nannus</i>	595
<i>stabilatrix</i>	695	<i>nasicus</i> , <i>Corvus</i>	257, 258, 277, 278
<i>superciliosa</i>	695	<i>Microcorax</i>	746
<i>sylvestris</i>	6	<i>nattereri</i> , <i>Anthus</i>	11
<i>trochilus</i>	695, 697	<i>neglecta</i> , <i>Motacilla</i>	8
<i>trogodytes</i>	595, 598	<i>neglectus</i> , <i>Parus</i> (<i>Pœcile</i>) <i>rufescens</i>	418
<i>γ</i>	543	<i>rufescens</i>	418, 419
<i>Motacillidae</i>	1, 2	<i>β</i>	418
<i>Mountain Chickadee</i>	408	<i>Penthestes rufescens</i>	397, 418
<i>Vireo</i>	169	<i>nelsoni</i> , <i>Heleodytes</i>	502, 514, 516
<i>muraria</i> , <i>Certhia</i>	460	<i>Polioptila</i>	713, 715, 724
<i>murarius</i> , <i>Salpinctes</i>	656	<i>Sitta carolinensis</i> ...	440, 445, 447, 448, 449
<i>Trogodytes</i>	656	<i>Nelson's Gnatcatcher</i>	724
<i>murina</i> , <i>Petrochelidon</i>	27, 738	<i>Neochelidon</i>	27, 67
<i>murinus</i> , <i>Bæolophus inornatus</i> ..	381, 389, 390, 751	<i>tibialis</i>	67, 68
<i>Thryomanes bewickii</i>	551, 559	<i>Neochloe</i>	129, 130, 211
<i>Thryothorus</i>	557, 558, 559	<i>brevipennis</i>	212
<i>bewickii</i>	557, 558, 559	<i>Neocorys</i>	11
<i>bewickii</i>	559	<i>spraguei</i>	21
<i>Trogodytes</i>	559	<i>spraguei</i>	21
<i>Muscicapa alticola</i>	189, 142	<i>Neositta</i>	877, 437
<i>cantatrix</i>	185	<i>nesophilus</i> , <i>Thryomanes bewickii</i> ..	550, 562, 563
<i>coerulea</i>	718	<i>Nicaraguan Banded Wren</i>	631
<i>coerulea</i>	718-720	<i>Gnatcatcher</i>	726
<i>gilva</i>	154, 156	<i>Rock Wren</i>	658
<i>jamalcensis</i>	149	<i>Nicasio Chickadee</i>	418
<i>melodia</i>	155	<i>niger</i> , <i>Melaniparus</i>	378
<i>novae-boracensis</i>	184	<i>Nightingale Wren</i>	667
<i>noveboracensis</i>	176	<i>Panama</i>	669
184, 185, 187, 190, 196		<i>Talamanca</i>	668
<i>ochroleuca</i>	166	<i>nigricapillus</i> , <i>Perisoreus canadensis</i>	365,
<i>olivacea</i>	130, 139, 142, 149	366, 368, 369	
<i>solitaria</i>	167, 168, 170, 174, 175	<i>Thryophilus</i>	622, 627
<i>stenura</i>	710	<i>nigricapillus</i>	622
<i>sylvicola</i>	166	<i>Thryothorus</i>	622, 625, 627
<i>musculus</i> , <i>Trogodytes</i>	571	<i>Trogodytes</i>	622
<i>musica</i> , <i>Hemipura leucogastra</i>	620	<i>nigricaudatus</i> , <i>Heleodytes capistratus</i>	501,
<i>Musician Wren</i> , <i>Lawrence's</i>	673	506, 507	
<i>musicus</i> , <i>Anthus</i>	20	<i>nigriceps</i> , <i>Campylorhynchus</i>	512
<i>Formicarius</i>	670	<i>Polioptila</i>	714, 715, 716, 729, 730, 731
<i>Nannorchilus leucogaster</i>	618, 620	<i>nigriceps</i>	714, 731
<i>Thryothorus</i>	592	<i>nisorius</i> , <i>Thryophilus</i>	631
<i>Trogodytes</i>	572, 591, 592	<i>pleurostictus</i>	623, 630, 631
<i>Vireo</i>	176, 185	<i>Thryothorus</i>	631
<i>Myiadestes townsendi</i>	123	<i>nitens</i> , <i>Cichlopsis</i>	122
<i>Myiothera obsoleta</i>	647	<i>Phænopepla</i>	123
<i>mystacalis</i> , <i>Cyanocorax</i>	308	<i>Phænopepla</i>	120, 122
<i>Meliphaga</i>	460	<i>Ptilogonys</i>	122
<i>Phyllomanes</i>	139	<i>nitidus</i> , <i>Trogodytes brunneicollis</i>	571, 598
<i>mystaceus</i> , <i>Regulus</i>	702	<i>niveogularis</i> , <i>Acanthiparus</i>	424
<i>N.</i>		<i>nobilis</i> , <i>Corvus</i>	261, 263
<i>nana</i> , <i>Aphelocoma</i>	321	<i>corax</i>	261
<i>Cyanocitta</i>	321	<i>β</i>	263

	Page.		Page.
Northern Loggerhead Shrike	243	obscurus, <i>Regulus</i>	710
Raven	259	<i>calendula</i>	700, 710
Shrike	237	<i>Vireo huttoni</i>	179, 196
Northwest Crow	272	obsoleta, <i>Myiothera</i>	647
Notiochelidon	27, 65	<i>Salpinctes</i>	648
<i>pileata</i>	66	<i>Troglodytes</i>	647
Notiocorys	11	obsoletus, <i>Cyphorhinus</i>	648
notius, <i>Salpinctes obsoletus</i>	644, 648, 649	<i>Salpinctes</i>	647, 648, 649, 650, 651, 653
novaboracensis, <i>Vireo</i>	185	obsoletus	644, 645, 646
novae-boracensis, <i>Muscicapa</i>	184	<i>Thryothorus</i>	647
noveboracensis, <i>Muscicapa</i>	176,	<i>Troglodytes</i>	644
184, 185, 187, 190, 196, 201		646, 647, 649, 650, 651, 653	
<i>Vireo</i>	177, 178, 184,	obtecta, <i>Poecila</i>	336
185, 186, 187, 190, 196, 201		<i>cincta</i>	336
(<i>Laniavireo</i>)	185	obtectus, <i>Parus</i>	339, 412
noveboracensis	177,	<i>cinctus</i>	412
183, 185, 186		(<i>Poecila</i>)	336
nubicus, <i>Anthus pratensis</i>	17	<i>cinctus</i>	336, 412
<i>Lanius</i>	234	<i>Penthestes cinctus</i>	336, 411
nuchalis, <i>Dulus</i>	126, 127	occidentalis, <i>Certhia</i>	471
<i>Pica</i>	368	<i>familiaris</i>	463, 469, 470, 471
Nucifraga	280, 284	<i>Heleodytes</i>	427
<i>columbiana</i>	280, 281, 282	<i>Parus</i>	339, 402, 403
<i>columbianus</i>	282	var.	403
<i>cyanocephalus</i>	285	<i>atricapillus</i>	339, 402, 403
<i>hemispila</i>	280	<i>y</i>	403
Nutcracker, Clarke's	281	var.	403
Nuthatch, Brown-headed	453	(<i>Poecila</i>) <i>atricapillus</i> ..	403
Florida White-breasted	444	<i>Penthestes atricapillus</i>	336, 338
Mexican	448	ochraceiceps, <i>Hylophilus</i>	219, 220
Pigmy	456	<i>Pachysylvia</i>	215, 743, 744
Red-breasted	450	<i>ochraceiceps</i>	215
Rocky Mountain	447	218, 219	
Slender-billed	444	Ochraceous <i>Vireo</i>	193
St. Lucas	446	ochraceus, <i>Troglodytes</i>	478, 572, 599
White-breasted	441	<i>Vireo</i>	178, 183, 194
White-naped	459	ochroleuca, <i>Mniotilta</i>	166
Nuthatches	436	<i>Sylvia</i>	166
nuttalli, <i>Cleptes</i>	292	ochroleucus, <i>Vireo</i>	166
<i>Pica</i>	287, 291, 292	ocularis, <i>Motacilla</i>	3, 6
<i>caudata</i> , var.	292	<i>alba</i> , subsp.	7
<i>melanoleuca</i>	292	Odontorhynchus	500
var.	292	<i>cinnereus</i>	500
<i>hudsonica</i> c	292	Olbiorchilus	479, 595
<i>pica</i>	747	<i>alascensis</i>	597, 602, 604
?(<i>Pica</i> var.)	292	<i>hiemalis</i>	600
<i>rustica</i>	292	<i>helleri</i>	596, 602
nuttalli, <i>Pica</i>	292	<i>hiemalis</i>	596, 597, 600
<i>melanoleuca</i> var.	292	<i>pacificus</i>	596, 600, 601
		<i>meligerus</i>	597, 604, 605
O.		Old Providence <i>Vireo</i>	192
Oaxaca House Wren	578	olivacea, <i>Muscicapa</i>	130, 139, 142, 149
obscura, <i>Aphelocoma californica</i>	324,	<i>Vireo</i>	139, 150
330, 331, 333		(<i>Vireosylvia</i>)	150
<i>Polioptila caerulea</i> .. 713, 715, 720, 721, 722		<i>Vireosylvia</i>	131, 133, 134, 139, 147, 150
obscurus, <i>Heleodytes brunneicapillus</i> ..	508,	<i>Vireosylvia</i>	139, 150
521, 522		olivaceus, <i>Lanius</i>	149
<i>Perisoreus</i>	365, 373, 374	<i>Phyllomanes</i>	150, 741
<i>canadensis</i>	373, 374	<i>Regulus satrapa</i>	699, 702, 704
<i>y</i>	374	var.	704
var .. 370, 373, 374		<i>Vireo</i>	142, 149, 150
<i>capita-</i>		(<i>Vireosylvia</i>)	150
<i>lia</i> b 373, 374		<i>Vireosylvia</i>	150
obscurus	366, 372, 373	<i>olivaceus</i> var.	150
		Omiltete Jay	745

	Page.
omnisonus, Troglodytes	481
opifex, Hirundo	49
Oregon Chickadee	402
Jay	372
Oreocorys	11
Orites	425
Orizaba Vireo	158
ornata, Cyanocitta	322, 323
Cyanolyca	318, 323, 749
Pica	322
ornatum, Conirostrum	422
ornatus, Cyanocorax	322, 323
Cyanurus	323
Orochelidon	27, 738
andicola	27
murina (cinerea?)	27
osburni, Laetes	213, 214
osburni, Cyclarhis	214
Laetes	214
Osburn's Vireo	213
Oscines	103, 113, 128, 375
Osgood's Jay	354
ossifraga, Corone	275, 746
ossifragus, Colceus	275
Corvus	258, 270, 273, 274, 275, 278
Otocoris	22
sprangeri	21
Otomela	234

P.

Pachycephalinae	233
Pachysylvia decurtata	214
Pachysylvia	129, 214, 220
acuticauda	216, 743
aurantifrons	215, 744
aurantifrons	215, 220
hypoxantha	215
decurtata	214, 215, 216, 218
flavipes	216, 743
Gray-headed	216
griselpes	216, 743
insularis	216
Lawrence's	220
ochraceiceps	215, 743, 744
ochraceiceps	215
218, 219	
pallidipectus	215,
219, 744	
Pale-breasted	217
Tawny-crowned	218
viridiflava	214, 216, 221, 744
Yellow-green	221
pacifica, Anorthura	601
hiemalis	601
Hemifura	619
pacificus, Anorthura troglodytes	601
Nannorchilus leucogaster	618, 619
Olbiorchilus hiemalis	596, 600, 601
Troglodytes hiemalis	601, 602
hiemalis	601
β	601
var	601, 602
pagorum, Cecropis	80
Pale-breasted Pachysylvia	219
Pale Vireo	194

	Page.
Palenque Wren	620
pallasi, Cincius	680
pallens, Vireo	178, 194
ochraceus subsp. a Vireo	194
Pallenura	2
pallescens, Campylorhynchus	514, 516
Thryophilus	624
Pallid Wren-Tit	689
pallida, Petrochelidon fulva	46, 55, 56
pallidipectus, Pachysylvia ochraceiceps	215,
219, 744	
pallidus, Pheugopedius felix	530, 533
Palm Chat	126
White-naped	127
Palm Chats	123
Crow	276
palmarum, Arremon	127
Corvus	258, 276
Dulus	127
palmeri, Hirundo erythrogastra	84
paludicola, Cistothorus	495
palustris	495, 497
β	495
var	495, 497
(Telmatodytes) pa-	
lustris	497
Telmatodytes palustris	498,
496, 496, 497	
β	497
var	495
palustris, Anthus	20
Certhia	486, 490, 493, 495, 496, 499, 753
Cistothorus	491, 492, 493, 495, 496, 499
palustris	491
var	491, 493
(Telmatodytes)	491,
493, 496	
palus-	
tris.	491
Parus	394, 399
Telmatodytes	491, 492,
493, 494, 495, 496, 497, 545	
palustris. 488, 489, 492, 497	
Thryothorus	491
Troglodytes	490, 492, 493, 495, 496
Panama Black-bellied Wren	531
House Wren	575
Marsh Wren	486
Nightingale Wren	669
Pipit	23
Rough-winged Swallow	63
Shrike-Vireo	224
Wren	640
Panurina	376
papuensis, Podargus	670
Paridae	375, 376, 377
Parinae	377, 378, 379, 380
australes	376
typicae	376
parkmani, Troglodytes aëdon	585
var	585
domesticus	585
parkmanii, Troglodytes	584
aëdon	571, 582, 583, 584
b.	584

	Page.		Page.
<i>parkmanni</i> , <i>Troglodytes</i>	584	<i>Parus hudsonicus stoneyi</i>	414
<i>aëdon</i>	585	<i>ungava</i>	414
<i>β</i>	585	<i>ignotus</i>	19
<i>var.</i>	585	<i>inornatus</i>	388, 389, 390, 391
<i>aëdon</i>	585	<i>cineraceus</i>	392
<i>β</i>	585	<i>griseus</i>	391
<i>var.</i>	585	<i>inornatus</i>	388, 389, 390
<i>domesticus</i> , Subsp.		<i>ridgwayi</i>	391
<i>a. Troglodytes</i> ..	585	<i>lapponicus</i>	395
<i>parkmanni</i> , <i>Troglodytes aëdon</i>	585	(<i>Lophophanes</i>) <i>bicolor floridanus</i> ..	384
<i>Paroides</i>	425	<i>wollweberi</i>	393, 394
<i>flaviceps</i>	421, 423	<i>lutens</i>	3
<i>Parus</i>	376, 378, 391, 395, 684	<i>major</i>	378, 379
<i>albescens</i>	401	<i>melanotis</i>	427, 428
<i>annexus</i>	394	<i>melanotus</i>	427
<i>atricapillus</i>	378, 398, 399, 401, 402, 403, 405	<i>meridionalis</i>	408
<i>var. atricapillus</i>	399	<i>minimus</i>	431, 433, 434
<i>carolinensis</i>	405	<i>montanus</i>	409, 410
<i>var. carolinensis</i>	405	<i>obtectus</i>	395, 412
<i>occidentalis</i>	399, 402, 403	<i>occidentalis</i>	399, 402, 403
<i>y. occidentalis</i>	403	<i>var. occidentalis</i>	403
<i>var. occidentalis</i>	403	<i>palustris</i>	394, 399
<i>septentrionalis</i>	399, 401, 402	<i>pendulinus</i>	430
<i>β septentrionalis</i>	401	<i>plumbeus</i>	432
<i>var. septentrionalis</i> ..	400, 401	(<i>Poecila</i>) <i>obtectus</i>	396
<i>subspecies a. Parus carolinensis</i> ..	405	(<i>Poecile</i>) <i>atricapillus atricapillus</i> ..	399
<i>atricristatus</i>	385, 387	<i>occidentalis</i> ..	403
<i>castaneifrons</i>	386	<i>septentrionalis</i> ..	401
(<i>Baeolophus</i>) <i>atricristatus</i>	385	<i>turneri</i>	402
<i>atrocristatus</i>	387	<i>carolinensis agilis</i> ..	405
<i>bicolor bicolor</i>	384	<i>carolinensis</i> ..	405
<i>floridanus</i>	384	<i>cinctus obtectus</i>	395, 412
<i>texensis</i>	386	<i>gambeli</i>	411
<i>inornatus cineraceus</i> ..	392	<i>hudsonicus columbianus</i> ..	415
<i>inornatus</i>	389, 390	<i>evura</i>	414
<i>ridgwayi</i>	391	<i>hudsonicus</i> ..	414, 416
<i>bicolor</i>	380, 383, 391	<i>stoneyi</i>	414
<i>bicolor</i>	383	<i>sclateri</i>	406
<i>texensis</i>	386	<i>rufescens</i>	417, 418, 419
<i>bombycilla</i>	109	<i>barlowi</i>	419
<i>carolinensis</i>	405, 406	<i>neglectus</i>	418, 419
<i>agilis</i>	406	<i>β. neglectus</i>	419
<i>impiger</i>	407	<i>rufescens</i>	417, 418, 419
<i>caspicus</i>	8	<i>a. rufescens</i>	417
<i>caudatus</i>	425	<i>sclateri</i>	406
<i>cinctus</i>	396, 411, 412	<i>septentrionalis</i> ..	399, 400, 402
<i>alascensis</i>	412	<i>var. albescens</i>	401
<i>subsp. griseus</i>	396	<i>sibiricus</i>	396
<i>obtectus</i>	412	<i>sitchensis</i>	414
<i>cinereus montanus</i>	409	<i>stoneyi</i>	414
<i>cristatus</i>	379, 383	<i>var. septentrionalis</i> ..	400
<i>cyaneus</i>	379	<i>wollweberi</i>	393, 394
<i>erythrocephalus</i>	425	<i>parvus, Anthus</i>	11, 22, 23
<i>fasciatus</i>	687	(<i>Notiocoerys</i>)	23
<i>flavifrons</i>	422	<i>rufus</i>	23
<i>galeatus</i>	393	<i>pascuus, Corvus americanus</i>	256, 260, 270
<i>gambeli</i>	410	<i>brachyrhynchos</i>	746
<i>thayeri</i>	411	<i>patagonica, Atticora</i>	69
<i>griseus</i>	396	<i>Hirundo</i>	69
<i>griseus</i>	391, 709	<i>Pygochelidon</i>	69
<i>hudsonicus</i>	378, 413, 414, 415, 416	<i>Paulomagus</i>	669
<i>columbianus</i>	415	<i>pectoralis, Microcerculus</i>	669
<i>evura</i>	414	<i>Pedicoerys</i>	11
<i>littoralis</i>	414, 416	<i>Pedicoerys</i>	11
<i>var. littoralis</i>	416	<i>pelopus, Anthus</i>	14
		<i>pendulinus, Parus</i>	430

	Page.
<i>peninsularis</i> , <i>Troglodytes</i>	570, 574, 575
<i>pensilvanica</i> , <i>Alauda</i>	14
<i>pensilvanicus</i> , <i>Anthus</i>	11, 14
<i>pensylvanicus</i> , <i>Anthus</i>	14
<i>pennsilvanicus</i> , <i>Anthus</i>	14
<i>pennsylvanica</i> , <i>Calendula</i>	707
<i>pennsylvanicus</i> , <i>Anthus</i>	14
<i>Penthestes</i>	376, 379, 384, 395, 419
<i>atricapillus</i>	395
<i>atricapillus</i>	395,
397, 398, 399, 402, 403	
<i>occidentalis</i>	395, 398
<i>septentrionalis</i>	395,
398, 402	
<i>turneri</i>	395, 402
<i>carolinensis</i>	395
<i>agilis</i>	395, 406
<i>carolinensis</i>	395, 408, 406
<i>impiger</i>	396, 406
<i>cinctus</i>	396
<i>alascensis</i>	396, 411
<i>cinctus</i>	396
<i>obtectus</i>	396, 411
<i>gambelli</i>	396, 406
<i>hudsonicus columbianus</i>	396, 414
<i>hudsonicus</i>	396,
412, 414, 415	
<i>littoralis</i>	396, 415
<i>rufescens</i>	396
<i>barlowi</i>	397, 418
<i>neglectus</i>	397, 418
<i>rufescens</i>	397, 416
<i>sclateri</i>	396, 407
<i>Pepper-Shrake</i> , <i>Colba Island</i>	745
<i>Costa Rican</i>	230
<i>Cozumel</i>	230
<i>Mexican</i>	228
<i>Yucatan</i>	229
<i>percus</i> , <i>Thryomanes bewickii</i>	550, 560, 561
<i>Periparus</i>	379
<i>ater</i>	379
<i>varius</i>	379
<i>Perisoreus</i>	364
<i>canadensis</i>	365, 367,
368, 369, 370, 371, 373, 374	
<i>canadensis</i>	365, 366, 368,
369, 370, 371, 372, 374	
<i>var. canadensis</i>	368
<i>capitalis</i>	365,
366, 370, 371, 372	
<i>a. capitalis</i>	371
<i>var. capitalis</i>	371
<i>a. cana-</i>	
<i>den-</i>	
<i>sis</i>	368
<i>b. ob-</i>	
<i>scu-</i>	
<i>rus</i>	373,
<i>fumifrons</i>	365, 366, 369, 370
<i>nigricapillus</i>	365,
366, 368, 369	
<i>obscurus</i>	373, 374
<i>var. obscurus</i>	370, 373, 374

	Page.
<i>Perisoreus canadensis</i> γ. <i>obscurus</i>	374
<i>capitalis</i>	372
<i>infaustus</i>	365
<i>obscurus</i>	365, 373, 374
<i>griseus</i>	366, 373, 374
<i>obscurus</i>	366, 372, 373
<i>perquisitor</i> , <i>Vireo</i>	178, 187, 188
<i>personata</i> , <i>Psaltia</i>	428
<i>personatus</i> , <i>Psaltiriparus</i>	423, 428
<i>peruvianus</i> , <i>Anthus</i>	22
<i>Corvus</i>	305, 308
<i>Cyanocorax</i>	308
<i>petenicus</i> , <i>Thryothorus</i>	562
<i>Troglodytes</i>	562
<i>Petrochelidon</i>	25, 26, 44, 45
<i>albilinea</i>	91
<i>americana</i>	50
<i>bicolor</i>	90
<i>cyanoleuca</i>	71
<i>fulva</i>	46, 50, 54, 55
<i>fulva</i>	46, 47, 53, 54, 56
<i>pallida</i>	46, 55, 56
<i>pœcloma</i>	46, 47, 54, 55
<i>leucoptera</i>	91
<i>littorea</i>	92
<i>lunifrons</i>	46, 49, 51, 52, 53
<i>lunifrons</i>	46, 47, 50, 52
<i>melanogaster</i>	46,
47, 50, 51, 738	
<i>melanogastra</i>	53
<i>tachina</i>	46,
47, 48, 50, 51, 52	
<i>melanogaster</i>	52
<i>melanogastra</i>	52
<i>meyeni</i>	87
<i>murina</i>	27, 738
<i>pœcloma</i>	55
<i>pyrrhonota</i>	50, 51
<i>ruficollaris</i>	46
<i>rufocollaris</i>	46
<i>swainsoni</i>	51, 52
<i>swainsonii</i>	51, 52
<i>thalassina</i>	95, 98
<i>tibialis</i>	67, 68
<i>phæa</i> , <i>Chamaea fasciata</i>	686, 687, 688, 689
<i>phænicoptera</i> , <i>Ampelis</i>	105
<i>Phænopepla</i>	120
<i>nitens</i>	123
<i>phæocephalus</i> , <i>Cyphorhinus</i>	672
<i>Leucolepis</i>	672, 673
<i>phæocephalus</i>	673
<i>Phaeopharus</i>	394
<i>Phæoprogne</i>	25, 26
<i>Phainopepla</i>	113, 114, 120
<i>nitens</i>	120, 122, 123
<i>Phainoptila</i>	113, 114, 123
<i>melanoxantha</i>	123, 124
<i>Pheugopedius</i>	478, 527
<i>atroglularis</i>	528-530, 531
<i>fasciativentris</i>	533
<i>fasciato-ventris</i>	528-529, 532
<i>albigularis</i>	529, 531
<i>fasciato-</i>	
<i>ventris</i>	529

	Page.		Page.
<i>Phlegopedius fasciato-ventris melanogaster</i>	529, 532	<i>Pica caudata</i> var. <i>hudsonicus</i>	290
<i>felix</i>	530, 537, 538	<i>nuttalli</i>	292
<i>felix</i>	530, 536	<i>chloronota</i>	307
<i>grandis</i>	530, 537	<i>chrysops</i>	308
<i>lawrencei</i>	530, 538	<i>collei</i>	294
<i>magdalene</i>	530, 539	<i>coronata</i>	303
<i>pallidus</i>	530, 538	<i>cristata</i>	343
<i>hyperythrus</i>	529, 533	<i>cyanochlora</i>	293
<i>lætus</i>	529	<i>europæa</i>	285
<i>maculipectus</i>	535, 536	<i>formosa</i>	292, 296, 297
<i>cano-brunneus</i>	530, 536	<i>fuliginosa</i>	308, 309
<i>maculipectus</i>	529, 534	<i>germanica</i>	287
<i>umbrinus</i>	529, 535	<i>hiemalis</i>	287
<i>rutilus</i>	529, 534	<i>hudsonica</i>	290
<i>Philadelphia Vireo</i>	151, 153	<i>hudsonicus</i>	290
<i>philadelphica, Vireosylva</i>	133, 151, 152	<i>melanoleuca</i>	287, 291
<i>Vireosylva</i>	151, 152	<i>hudsonica</i>	290
<i>philadelphicus, Vireo</i>	152, 153	var. <i>hudsonica</i>	289, 290
<i>Vireosylva</i>	152	<i>b. hudsonica</i>	290
<i>philomela, Cyphorhinus</i>	667, 670	<i>c. nuttalli</i>	292
<i>Microcerculus</i>	666, 667, 670	<i>nuttalli</i>	292
<i>Philloscopus</i>	696	var. <i>nuttalli</i>	292
<i>phœnicopterum, Bombycilla</i>	105	<i>nuttalli</i>	292
<i>Phoneus</i>	234	<i>morio</i>	299, 300, 301, 302
<i>Phryothorus ludovicianus</i>	545	<i>nuchalis</i>	368
<i>Phyllobasileus</i>	695	<i>nuttalli</i>	257, 291, 292
<i>calendula</i>	709	<i>nuttalli</i>	292
<i>Phyllomanes</i>	130	<i>ornata</i>	322
<i>agilis</i>	132	<i>pica</i>	287, 290
<i>barbatulus</i>	139, 142	<i>hudsonica</i>	287, 291
<i>calidris</i>	139	<i>hudsonica</i>	290, 291
<i>flavifrons</i>	742	var. <i>hudsonica</i>	290
<i>flavoviridis</i>	146, 742	<i>hudsonica</i>	290
<i>gilvus</i>	741	<i>hudsonicus</i>	747
<i>mystacalis</i>	139	<i>nuttalli</i>	292, 747
<i>olivaceus</i>	150, 741	<i>pica</i>	287, 747
<i>solitarius</i>	742	<i>rustica</i>	287
<i>Phyllopneuste</i>	695	<i>hudsonica</i>	290
<i>borealis</i>	694, 696, 697	var. <i>hudsonica</i>	290
<i>kennicotti</i>	696, 697	<i>nuttalli</i>	292
<i>sylvicultrix</i>	696	<i>san-blasiana</i>	312, 314
<i>Phyllopseuste</i>	695	<i>septentrionalis</i>	287
<i>Phyllopseuste</i>	695	<i>sieberii</i>	338, 339, 341, 749
<i>Phyllopseustes</i>	695	<i>stelleri</i>	352
<i>borealis</i>	696, 697	<i>varia</i>	287
<i>kennicotti</i>	697	<i>vulgaris</i>	287
<i>Phylloscopinae</i>	694, 754	<i>pica, Corvus</i>	286, 287, 290
<i>Phylloscopus</i>	695	<i>Picicorvus</i>	290
<i>borealis</i>	696, 697	<i>columbianus</i>	292, 293
<i>hylebata</i>	696	<i>Picolaptes brunneicapillus</i>	519, 521, 523
<i>sylvicultrix</i>	696	<i>capistrata</i>	506, 508
<i>trochilus</i>	697	<i>rufinucha</i>	506
<i>Pica</i>	286	<i>zonatus</i>	511, 512, 513
<i>albiventris</i>	287	<i>pigmæa, Sitta</i>	458
<i>beechellii</i>	315, 316	<i>Pigmy Nuthatch</i>	454
<i>beecheyii</i>	316	<i>pileata, Atticora</i>	66
<i>bernettii</i>	295	<i>Notiochelidon</i>	64
<i>bullockii</i>	292, 295, 296, 298	<i>Uroleuca</i>	305
<i>cærulea</i>	304	<i>pileatus, Corvus</i>	303, 305
<i>cærulescens</i>	327	<i>Cyanocorax</i>	305
<i>caudata</i>	287	<i>pinetorum, Ampelis</i>	112
<i>hudsonica</i>	290	<i>Pifion Jay</i>	294
var. <i>hudsonica</i>	290	<i>Pipastes</i>	10
		<i>pipiens, Anthus</i>	15

	Page.		Page.
Pipit, American	11	Pœcile carolinensis	405, 752
Meadow	18	cincta	396
Panama	22	meridionalis	752
Sprague's	20	montana	410
Vinaceous-throated	15	sibirica	396
Pipits and Wagtails	1	vera	396
Pipra europæa	425	Pœcilia	394
pittieri, Henicorhina	612, 613	pœciloma, Hirundo	55
prostheleuca .. 608, 611, 612		Petrochelidon	55
Pittler's Wood Wren	612	fulva	46, 47, 54, 55
Plain Titmouse	387	Pœcilus	394
platensis, Cistothorus	481	Poikilis	394
Hylemathrous	481	pollocoella, Bombyciphora	109
Sylvia	481	pollopleura, Thryophilus rufalbus	633
Thryothorus	481	var	633
plesius, Cistothorus palustris	494, 496	Thryothorus	633
Telmatodytes palustris	488, 494	pollopleurus, Troglodytes	633
pleurostictus, Thryophilus	621, 622, 631, 632	Polloptila	684, 710, 722, 754
pleurostictus 622, 629		albiflora	726, 727
Thryothorus	630	albiflora .. 713, 714, 716, 725, 726, 727	
Troglodytes	631	albiiventris	714, 716, 729
plumbea, Acredula	432	anteocularis	714, 715
Culicivora	733	bairdi	713, 716, 726
Lanivireo	171	bilineata	713, 716, 726, 727, 728, 729
solitaria	172	cærulea	713, 718, 719, 721, 722, 723
var	171, 172	cærulea	713, 715, 716, 720
Polloptila	716, 731, 733, 734	cæsiogastra	713, 715, 723
Psaltria	431	mexicana .. 713, 715, 718, 722, 724	
Vireosylvia	171	obscura .. 713, 715, 720, 721, 722	
Plumbeous Bush-Tit	430	cæsiogaster	723
Gnatcatcher	731	californica	716, 734, 735
Vireo	170	cærulea	719, 721, 722
plumbeus, Aegithalos	432	mexicana	722
Lanivireo	171	lembeyei	716, 735, 736
solitarius	163, 170, 172	lembeyi	736
var	172	lembeyii	736
Parus	432	leucogastra	714, 715, 716, 726
Psaltriparus	425, 430, 431, 432	margaritæ	733
var	432	melanura	734, 735
minimus	432	mexicana	722
var	432	nelsoni	713, 715, 724
Subsp. <i>ß.</i> Vireo	172	nigriceps	714, 715, 716, 729, 730, 731
Vireo	171	anteocularis	712, 714
solitarius	172	nigriceps	714, 731
var	171	restricta	731
plumbiceps, Hylophilus	218	plumbea	716, 731, 733, 734
Polloptila	714, 715, 716	plumbiceps	714, 715, 716
Podargus papuensis	670	restricta	730
Pœcile	394	sclateri	714
affinis	396	superciliaris	714, 727, 728
atricapillus	399	magna	716, 728, 729
carolinensis	405	superciliaris .. 713, 716, 727	
cincta	396	Polloptilinae	376, 694, 754
griseescens	396	polloptilus, Catherpes mexicanus ..	655, 660, 663
obtecta	396	polyglottus, Cistothorus	481, 486
melanotis	427	polyglottus	481
minimus	433	Thryothorus	481, 486
obtecta	396	Porto Rican Crow	278
alascensis	412	potosina, Aphelocoma sieberii ..	325, 340, 341, 342
rufescens	418	Prairie Marsh Wren	492
sibirica	396	prasina, Hirundo	90
sibiricus	396	pratensis, Alauda	10, 17, 19
sibimicrorhynchos	396	Anthus	11, 17, 18, 19, 115
Pœcile	394	Lelmonipectera	19
atricapilla	399, 751	Spipola	19
atricapillus	399	pratorum, Anthus	20

	Page.		Page.
Presbys	477	Psaltriparus plumbeus	425, 430, 431, 432
principalis, Corvus corax	257, 259, 260, 261, 262	var. plumbeus	433
Prionopidae	233	santaritæ	430
Procne	28	Psaltrites	423
chalybea	42	helviventris	428
procne, Chelidon	76, 80	melanotis	732
Progne	25, 26, 28, 38	minimus	732
chalybea	31, 40, 42	Psalorhinus	298
domestica	31	bullockii	295
concolor	44	cyanocephalus	295
cryptoleuca	30, 31, 35, 37, 38, 39, 40	cyanogenys	301, 302
domestica	31, 43	gubernatrix	295
dominicensis	30, 31, 37, 38, 39, 40, 41, 43	mexicanus	298, 300, 301, 302, 303
elegans	30, 35	cyanogenys	299, 301, 303
furcata	30, 31, 43	mexicanus	298, 301
hesperia	37	vociferus	299
leucogaster	43	morio	298, 299, 300, 301, 302
leucogastra	43	fuliginosus	298, 300
modesta	30, 31, 43, 44	morio	298, 299, 300, 301
modestus	44	vociferus	303
purpurea	34, 35, 36, 37, 38, 43	Pterocorax	254
sinaloæ	30, 40	Ptilogonatus cinereus	117
subis	29, 30, 34, 36, 37, 38, 40, 43	Ptilogonys cinereus	117
cryptoleuca	35	molybdophanes	118
floridana	35	Ptiligonatidae	113, 114, 123, 125
floridanus	33	Ptiligonatus	114
hesperia	29, 30, 33, 35, 36	Ptiligonys	114, 122
subis	29, 30, 31, 33, 35	caudatus	114, 115, 118, 119
var. concolor	44	cinereus	115, 117
cryptoleuca	38	cinereus	115, 117, 118
(subis var.?) dominicensis	40	molybdophanes	115, 117
leucogaster	43	Costa Rican	118
propinqua, Vireosylvia	167	Guatemalan	117
propinquus, Lanivireo	163, 166	Mexican	115
solitarius var	167	nitens	122
Vireo	167	Salvin's	124
proregulus, Motacilla	695	Ptyonoprogne purpurea	35
prostheleuca, Henicorhina	607, 608, 611, 612	puella, Hirundo	77
prostheleuca	608, 610	pulchellus, Vireolanius	222, 223, 224
Heterorhina	611	pulchellus	222, 223, 224
prostheleucus, Cyphorhinus	611, 612, 615	pulchra, Cissolopha san-blasiana	313, 314
Scytalopus	607, 611, 612, 615	Cissolopha	314
Psalidoprogne	57	Cyanocitta	319
Psaltria flaviceps	421	Cyanolyca	319
melanotis	427	pullus, Thryophilus modestus	624, 641, 642
minima	433, 435	pulverius, Salpinctes	650
personata	428	obsoletus	644, 649, 650
plumbea	431	pumilo, Cyanocitta	322
Psaltriparinæ	376, 378, 379	Cyanocorax	322
Psaltriparus	375, 376, 379, 423, 424, 425, 684	Cyanolyca	318, 319, 321, 322, 324
flaviceps	422	Cyanurus	322
grindæ	426, 436	punctulatus, Catherpes mexicanus	654
lloydii	430	650, 660, 663	
melanotis	427, 428, 430	Purple Martin	31, 34
lulus	425, 428, 429	purpurea	35
lloydii	425, 429, 430, 431	Hirundo	34, 35, 36, 37, 43
melanotis	425, 426, 428	Progne	34, 35, 36, 37, 38, 43
minimus	426, 431, 433, 434, 435, 684	Ptyonoprogne	35
californicus	426, 434, 435, 436	pusilla, Heterorhina	619
grindæ	436	Sitta	441, 453, 455
minimus	426, 432, 434, 435	pusilla	455
plumbeus	432	pusillus, Cyphorhinus	619
var. plumbeus	432	Cyphorhinus	619
saturatus	426, 434, 752	Hylophilus	219
personatus	423, 428	Vireo	200, 209, 219
		beli	208

	Page
<i>pusillus</i> , <i>Vireo bellii</i>	208, 209
<i>pygmæa</i> , <i>Sitta</i>	441, 457, 458
<i>pygmæa</i>	441, 456, 458
<i>pusilla</i>	459
<i>var</i>	458
<i>pygmæa</i> , <i>Sitta</i>	458
<i>Pygochelidon</i>	26, 68
<i>cyanoleuca</i>	69
<i>patagonica</i>	69
<i>pyrrhonota</i> , <i>Cotyle</i>	50
<i>Hirundo</i>	50, 51
<i>Petrochelidon</i>	50, 51
<i>Pysaltriparus</i>	428
Q.	
<i>quindiana</i> , <i>Cyanolyca</i>	318
R.	
<i>Raven</i> , <i>Clarion Island</i>	264
<i>Mexican</i>	262
<i>Northern</i>	259
<i>White-necked</i>	265
<i>ravus</i> , <i>Thryophilus pleurostictus</i> ...	623, 631, 632
<i>Red-breasted Nuthatch</i>	450
<i>-eyed Flycatcher</i>	149
<i>Vireo</i>	147
<i>Lark</i>	15
<i>Regulina</i>	376
<i>Reguloides</i>	695
<i>calendula</i>	709
<i>reguloides</i> , <i>Regulus</i>	702
<i>Regulus</i>	684, 698, 754
<i>americanus</i>	702
<i>calendula</i>	700, 707, 708, 709
<i>calendula</i>	700, 706, 709
<i>cineraceus</i>	706, 709
<i>grinnelli</i>	700, 709, 710
<i>obscurus</i>	700, 710
<i>calendulus</i>	709
<i>cristatus</i>	701, 708
<i>cuvieri</i>	705
<i>cuvierii</i>	700, 704, 705
<i>ignicapillus satrapa</i>	702
<i>modestus</i>	695
<i>mystaceus</i>	702
<i>obscurus</i>	710
<i>reguloides</i>	702
<i>regulus</i>	701
<i>rubineus</i>	709
<i>satrapa</i>	700, 701, 702, 703, 704
<i>aztecus</i>	704
<i>olivaceus</i>	699, 702, 704
<i>satrapa</i>	699, 700, 702
<i>var. olivaceus</i>	704
<i>satrapus</i>	702, 704
<i>tricolor</i>	702
<i>regulus</i> , <i>Motacilla</i>	698, 701
<i>Sylvia</i>	701, 702
<i>reinhardtii</i> , <i>Anthus</i>	15
<i>Remiza</i>	375, 378, 420
<i>Remizinae</i>	376, 377, 378
<i>republicana</i> , <i>Hirundo</i>	49
<i>restricta</i> , <i>Polioptila</i>	730
<i>nigriceps</i>	731
<i>restrictus</i> , <i>Baeolophus inornatus</i>	381, 389, 751

	Page.
<i>restrictus</i> , <i>Heleodytes zonatus</i>	502, 512, 513
<i>Rhabdornis</i>	460
<i>Rhinocorax</i>	256
<i>richardi</i> , <i>Anthus</i>	10
<i>richardsoni</i> , <i>Cyphorhinus</i>	674
<i>Cyphorhinus</i>	674
<i>ridgwayi</i> , <i>Parus (Baeolophus) inornatus</i> ...	391
<i>Stelgidopteryx</i>	57, 58, 61, 62
<i>Rio Grande Green Jay</i>	308
<i>Riparia</i>	28, 72
<i>europæa</i>	72, 76
<i>riparia</i>	26, 73, 76
<i>riparia</i> , <i>Clivicola</i>	75, 76
<i>Cotile</i>	75
<i>Cotyle</i>	75
<i>Hirundo</i>	72, 74
<i>rivularis</i> , <i>Cinclus</i>	677
<i>robustus</i> , <i>Collurio ludovicianus</i> , <i>var</i>	234
<i>Collurio ludovicianus</i> , <i>var</i>	237
<i>Lanius</i>	237
<i>ludovicianus</i>	237
<i>Rock Wren</i>	645
<i>Chancol</i>	651
<i>Guadalupe</i>	650
<i>Mexican</i>	648
<i>Nicaraguan</i>	653
<i>Salvador</i>	653
<i>San Benedicto</i>	650
<i>San Nicolas</i>	649
<i>Spotted</i>	651
<i>Rocky Mountain Creeper</i>	467
<i>Nuthatch</i>	447
<i>Rough-winged Swallow</i>	58
<i>Panama</i>	63
<i>Salvin's</i>	62
<i>Yucatan</i>	61
<i>rubens</i> , <i>Anthus</i>	15
<i>rubineus</i> , <i>Regulus</i>	709
<i>rubra</i> , <i>Alauda</i>	15
<i>Ruby-crowned Kinglet</i>	705
<i>Sitta</i>	709
<i>Ruddy Wren-Tit</i>	698
<i>rufa</i> , <i>Alauda</i>	11, 15, 22, 23
<i>Cecropis</i>	83
<i>Certhia</i>	466
<i>familiaris</i>	466
<i>Hirundo</i>	83, 85
<i>rustica</i>	85
<i>rufalbus</i> , <i>Thryothorus</i>	633
<i>Thryophilus</i>	623, 633, 634
<i>rufalbus</i>	623, 632, 633, 634
<i>var</i>	634
<i>Thryothorus</i>	620, 633, 634
<i>Troglodytes</i>	633, 634
<i>rufescens</i> , <i>Anthus</i>	10
<i>Parus</i>	417, 418, 419
<i>(Poecile) rufescens</i>	418
<i>rufescens</i>	417, 418, 752
<i>a</i>	417
<i>Penthestes</i>	396
<i>rufescens</i>	397, 416
<i>Poecila</i>	418
<i>Thryothorus</i>	594, 595
<i>Troglodytes</i>	572, 594
<i>ruficeps</i> , <i>Thryothorus</i>	537
<i>ruficollaris</i> , <i>Petrochelidon</i>	46

	Page.		Page.
ruficollis, Anthus	18	sanblasiana, Cissilopha	314
Cotyle	64	Cyanocitta	314
Hirundo	58, 64	Cyanolyca	314
Steigidopteryx	58	Xanthura	314
ruficollis	57, 58	san-blasiana, Cissilopha	312, 313
rufigularis, Anthus pratensis	17	san-blasiana	313, 314
rufinucha, Campylorhynchus	506, 508	Pica	312, 314
Heleodytes	501, 507, 508	sanblasianus, Cissilopha	314
Picolaptes	508	Cyanocorax	314
rufociliatus, Troglodytes	572, 588, 589	Cyanurus	314
brunneicollis,		San Benedicto Rock Wren	650
subsp. a Troglodytes	589	Bias Jay	313
rufocollaris, Hirundo	46	Clemente Wren	663
Petrochelidon	46	Diego Titmouse	389
rufogularis, Anthus	17	Wren	561
cervinus, var.	17	Francisco Titmouse	389
Sarochalinus	672	Luis Potosi Jay	340
rufosuperciliaris, Anthus	18	Miguel Wren	635
Rufous-and-white Wren	632	Vireo	147
-browed Wren	588	Nicolas Rock Wren	649
-naped Cactus Wren	507	Santa Cruz Island Vireo	743
rufula, Chamaea fasciata	686, 687, 688, 689	Santa Cruz Jay	331
Hirundo	77	Wren	582
rufus, Anthus	28	Lucia Wren	591
Heleodytes humilis	509	santaritae, Aegithalos	430
Lanius	234	Psaltiriparus	430
Rufus-rumped Swallow	50	Sarochalinus rufogularis	67
Russet Wren	637	satrapa, Regulus	700, 701, 702, 703, 704
russeus, Thryophilus sinaloa	623, 637	ignicapillus	72
rustica, Cecropis	80	satrapa	699, 700, 701
Chelidon	80	satrapus, Regulus	702, 704
Hirundo	76, 77, 78, 79, 80, 82, 84, 85	saturata, Hirundo	8
Pica	287	saturatus, Psaltiriparus minimus	426, 434, 712
rusticus, Corvus	287	scapulatus, Corvus	36
rutilus, Pheugopedius	523, 534	schottii, Thryophilus nigricapillus	622, 623
Thryothorus	529, 534	Schott's Wren	626
S.		schulzi, Cinclus	677
Sacramento Bush-Tit	435	scilateri, Cyanocorax	303, 304
Wren	563	Hirundo	108
Saint Andrews Vireo	148	Lamprochelidon	101
Saint Lucas Vireo	175	Parus	406
Salpinctes	474, 476, 479, 643	(Poecile)	406
fasciatus	644, 653	Penthestes	395, 407
guadalupensis	650, 651	Polioptila	714
guttatus	644, 653	Tachycineta	103
maculatus	644, 651, 652	Sclater's Banded Wren	659
mexicanus	656	Cactus Wren	506
murarius	656	Wood Wren	610
obsoleta	648	scolopaceus, Campylorhynchus	500
obsoletus	647, 648, 649, 650, 651, 653	Scytalopus prosthaleucus	607, 611, 612, 615
exsul	644, 650	Seattle Wren	606
guadelupensis	644, 650	seimbadius, Thryophilus	622, 627, 628
notius	644, 648, 649	Thryothorus	628
obsoletus	644, 645, 648	semiflavus, Vireo	194
pulverius	644, 649, 650	sennetti, Baeolophus atricristatus	381, 386, 387
pulverius	650	Sennett's Titmouse	386
Salpinctes	460	sepiaria, Alauda	19
Salvador Rock Wren	653	sepiarius, Anthus	19
salvini, Cyphorhinus	672	septentrionalis, Lanius	240
Leucoclepis	672, 673	Lophophanes	400
Steigidopteryx	57, 58, 59, 62, 63, 739	Motacilla	6
Salvin's Rough-winged Swallow	62	Parus	399, 400, 402
Ptilogonyx	124	var	400
Wren	627	atricapillus	399, 401, 402
		β	404

	Page.		Page
septentrionalis , <i>Parus atricapillus</i> var	400	<i>Sitta carolinensis aculeata</i> ..	440, 444, 446, 448, 449
(<i>Poecile</i>) <i>atricapillus</i>	401	<i>β. aculeata</i>	446, 448
<i>Penthestes atricapillus</i>	395,	var. <i>aculeata</i> ..	446, 447, 448, 449
.....	398, 402	(var <i>aculeata</i>)	449
<i>Pica</i>	287	<i>atkinsi</i>	440, 444
serripennis , <i>Cotile</i>	60	<i>carolinensis</i> ..	440, 441, 443, 444
<i>Cotyle</i>	59, 63	var. <i>carolinensis</i>	448
<i>Hirundo</i>	56, 59, 62, 63	<i>lagunæ</i>	440, 446, 447
<i>Stelgidopteryx</i>	57, 58, 60, 61, 62, 63	<i>mexicana</i>	440, 448, 450
<i>ruficollis</i>	61	<i>minor</i>	455
shelleyi , <i>Cotile</i>	73	<i>nelsoni</i> ..	440, 445, 447, 448, 449
Short-billed Marsh Wren	482	<i>europæa</i>	439
Shrike , <i>California</i>	249	<i>δ</i>	455
<i>Loggerhead</i>	241	<i>γ</i>	443
<i>Mexican</i>	248	<i>melanocephala</i>	443, 453
<i>pepper</i>	228	<i>minor</i>	455
<i>Northern</i>	237	<i>pygmæa</i>	458
<i>Northern Loggerhead</i>	243	<i>pygmæa</i>	441, 457, 458
<i>White-rumped</i>	246	<i>leuconucha</i>	441, 459
<i>-Vireo, DuBus'</i>	225	<i>pygmæa</i>	441, 456, 458
<i>Carmol's</i>	224	<i>pygmæa</i>	458
<i>Goldman's</i>	744	<i>pusilla</i>	441, 453, 455
<i>Panama</i>	224	<i>pusilla</i>	455
Shrikes	232	<i>pygmæa</i>	459
<i>Sialia</i>	656	var. <i>pygmæa</i>	458
<i>Sibilatrix</i>	695	<i>stulta</i>	453
<i>sibilatrix</i> , <i>Motacilla</i>	695	<i>varia</i>	453
<i>sibirica</i> , <i>Poecila</i>	396	<i>Sittella</i>	437, 439
<i>sibiricus</i> , <i>Lanius</i>	235	<i>Sittidæ</i>	377, 436, 439
<i>borealis</i>	235	<i>Sittiparus</i>	379
<i>Parus</i>	396	<i>Slender-billed Nuthatch</i>	444
<i>Poecila</i>	396	<i>Small White-eyed Vireo</i>	196
<i>submicrohynchus</i> , <i>Poecila</i>	396	<i>Socorro Wren</i>	568
<i>sieberi</i>	342	<i>solitaria</i> , <i>Lanivireo solitaria</i> , var.	174
<i>Aphelocoma</i>	339	<i>Muscicapa</i>	167, 168, 170, 174, 175
<i>Cyanocitta</i>	339	<i>Vireosylvia</i>	169, 174, 175
<i>Cyanurus</i>	339, 341	<i>solitarius</i> , <i>Corvus</i>	257, 276
<i>sieberi</i> , <i>Aphelocoma</i>	325, 339, 343	<i>Lanius</i>	169
<i>sieberi</i> . 325, 338, 339, 340, 343		<i>Lanivireo</i>	163, 167, 169, 174
<i>Cyanocorax</i>	338	<i>solitarius</i>	163,
<i>Pica</i>	338, 339, 341, 749	.....	166, 167, 169, 172
<i>Siebecocitta</i>	749	var	169
<i>Sieber's Jay</i>	388	<i>Microcorax</i>	276
<i>Sierra Madre Creeper</i>	472	<i>Phyllomanes</i>	742
<i>Nevada Jay</i>	355	<i>Vireo</i>	167, 168, 169, 170, 172, 174, 175
<i>Silky Flycatchers</i>	118	(<i>Lanivireo</i>)	169
<i>Silvery-throated Jay</i>	319	<i>solitarius</i>	169
<i>Sinaloa Martin</i>	40	<i>Solitary Vireo</i>	167
<i>Wren</i>	635	<i>solstitialis</i> , <i>Troglodytes</i>	478, 572, 590
<i>sinaloa</i> , <i>Thryophilus</i>	621, 623, 636	<i>Sooty Jay</i>	300
<i>sinaloa</i>	623, 635, 636	<i>sordida</i> , <i>Aphelocoma</i>	339, 341
<i>Thryothorus</i>	636	<i>Cyanocitta</i>	339, 340, 341, 343
<i>Troglodytes</i>	636	<i>ultramarina</i> , var.	339
<i>sinaloæ</i> , <i>Progne</i>	30, 40	<i>sordidus</i> , <i>Cyanogarrulus</i>	339
<i>sinatus</i> , <i>Corvus corax</i>	263	<i>Cyanurus</i>	339
<i>sinuatus</i> , <i>corvus</i>	261, 263, 265	<i>Garrulus</i>	339, 340, 341, 343
<i>corax</i>	257,	<i>Vireo hypochryseus</i>	179, 202
.....	259, 260, 261, 262, 263, 264, 265	<i>speciosa</i> , <i>Xanthoura luxuosa</i>	306, 310, 311, 312
<i>sitchensis</i> , <i>Parus</i>	418	<i>Sphenostoma</i>	375, 377
<i>Sitka Ruby-crowned Kinglet</i>	709	<i>Sphenotelus</i>	114
<i>Sitta</i>	377, 437, 438, 439	<i>caudatus</i>	119
<i>aculeata</i>	445, 446, 447, 449	<i>Sphenura coraya</i>	527
<i>canadensis</i>	440, 443, 450, 451, 453	<i>spilonota</i> , <i>Certhia</i>	460
<i>carolinensis</i>	443	<i>spilurus</i> , <i>Thryomanes bewicki</i> , <i>β</i>	564
<i>carolinensis</i>	438, 440, 443, 444, 445, 447, 449	<i>Thryothorus</i>	564, 565, 567

	Page.		Page.
<i>spilurus</i> , <i>Thryothorus bewicki</i>	564, 565, 567	<i>stelleri</i> , <i>Garrulus</i>	352, 353, 357
<i>bewicki</i> , y.....	564	<i>Lophocorax</i>	353
<i>bewickii</i>	561.	<i>Pica</i>	352
.....	562, 564, 565, 567	<i>stellerii</i> , <i>Cyanurus</i>	352
c	564, 565, 567	<i>Stellerocitta</i>	750
var	568,	<i>Steller's Jay</i>	351
.....	564, 565, 567	<i>stenura</i> , <i>Muscicapa</i>	770
<i>Thryomanes</i>	564	<i>Stephens' Vireo</i>	197
<i>bewicki</i>	561.	<i>stephensi</i> , <i>Vireo huttoni</i>	179, 197, 198, 199
.....	562, 564, 566, 567	<i>stephensoni</i> , <i>Vireo huttoni</i>	195
<i>leucogaster</i>	564, 566	<i>stoneyi</i> , <i>Parus</i>	414
c	564, 566	<i>hudsonicus</i>	414
<i>bewickii</i>	550,	(Poecile) <i>hudsonicus</i>	414
.....	563, 564, 565, 566, 567	<i>strenua</i> , <i>Vireosylva amauronota</i>	134, 150
<i>Troglodytes</i>	558, 561, 562, 563, 564, 565	<i>strenuus</i> , <i>Vireo amauronotus</i>	159
<i>spinoletta</i> , <i>Alauda</i>	10, 15	<i>striatulus</i> , <i>Thriothorus</i>	575
<i>Anthus</i>	15	<i>Troglodytes</i>	571, 576
<i>Sipola</i>	10	<i>musculus</i>	575
<i>pratensis</i>	19	<i>Strickland's Jay</i>	321
<i>spipoletta</i> , <i>Anthus</i>	14	<i>stridulus</i> , <i>Heleodytes</i>	527
<i>splendens</i> , <i>Corvus</i>	256, 263	<i>Striped-breasted Wren</i>	625
<i>Spotted-breasted Wren</i>	534	<i>stulta</i> , <i>Sitta</i>	458
Guatemalan	535	<i>Sturnus cinclus</i>	676
Yucatan	536	<i>St. Lucas Cactus Wren</i>	520
Cactus Wren	526	<i>Nuthatch</i>	448
Rock Wren	651	<i>St. Vincent Wren</i>	591
<i>spraguei</i> , <i>Agrodroma</i>	21	<i>subflavescens</i> , <i>Cyclarhis flavipectus</i>	227, 230
<i>Anthus</i>	21	<i>Cyclorhis</i>	232
<i>Neocorys</i>	21	<i>flavipectus</i>	232
<i>spragueii</i> , <i>Alauda</i>	11, 21	<i>subis</i> , <i>Cecropis</i>	34
<i>Anthus</i>	11, 20, 21, 22	<i>Hirundo</i>	28, 33, 36, 38
<i>Sprague's Pipit</i>	20	<i>Progne</i>	29, 30, 34, 36, 37, 38, 40, 43
<i>spraguili</i> , <i>Anthus</i> (<i>Neocorys</i>)	21	<i>subis</i>	29, 30, 31, 33, 35
<i>Neocorys</i>	21	<i>sultaneus</i> , <i>Melanochlora</i>	578
<i>sprangeri</i> , <i>Otocoris</i>	21	<i>sumichrasti</i> , <i>Aphelocoma</i>	325, 335, 336, 337
<i>squamulatus</i> , <i>Microcerculus</i>	666	<i>californica</i> var.	
<i>stabulum</i> , <i>Cecropis</i>	80	<i>woodhousei</i>	336
<i>stagnatilis</i> , <i>Anthus</i>	20	<i>Catherpes</i>	663, 665
<i>Steigodpteryx</i>	25, 26, 27, 56	<i>Cyanocitta</i>	336
<i>fulvigula</i>	63, 65	<i>californica</i> var.....	335, 336
<i>fulvipennis</i>	61, 62, 63	<i>floridana</i> var	335, 336
<i>gutturialis</i>	65	<i>Hylorchilus</i>	665
<i>ridgwayi</i>	57, 58, 61, 62	<i>Sumichrast's Jay</i>	336
<i>ruficollis</i>	58	<i>superciliaris</i> , <i>Polioptila</i>	714, 727, 728
<i>sequalis</i>	65	<i>superciliaris</i>	713, 716, 737
<i>fulvipennis</i>	63	<i>Vireo</i>	208
<i>ruficollis</i>	57, 58	<i>supercilliosa</i> , <i>Cyanocitta</i>	329
<i>serripennis</i>	61	<i>Motacilla</i>	695
<i>uropygialis</i>	57,	<i>Suthora</i>	376
.....	58, 62, 63, 65	<i>swainsoni</i> , <i>Petrochelidon</i>	51, 52
<i>salvini</i>	57, 58, 59, 62, 63, 739	<i>Vireo</i>	157
<i>serripennis</i>	57, 58, 60, 61, 62, 63	<i>gilvus</i>	157, 158
<i>uropygialis</i>	64, 65	b.....	157
<i>stellaris</i> , <i>Cistothorus</i>	481, 482, 483, 484, 486, 495	var	157
<i>Thryothorus</i>	484	<i>swainsoni</i> b.....	156
<i>Troglodytes</i>	480, 483, 486, 495	<i>Vireosylva gilva</i>	154, 155, 156
<i>stelleri</i> , <i>Corvus</i>	345, 352, 355, 356, 357, 359	<i>Vireosylva</i>	157
<i>Cyanocitta</i>	346, 353, 355, 356, 359	<i>gilva</i>	156
<i>stelleri</i>	346, 351, 353, 354, 357	<i>β</i>	158
<i>Cyanocorax</i>	353, 356, 359	var	157
<i>Cyanogarrulus</i>	353	<i>gilvus</i> , var	157
<i>Cyanura</i>	353, 355, 356, 357, 359	<i>swainsonii</i> , <i>Petrochelidon</i>	51, 52
<i>stelleri</i> var	353, 355	<i>Vireo</i>	157
<i>Cyanurus</i>	352, 355, 356, 359	<i>gilvus</i>	157
<i>stelleri</i> var. <i>macrole-</i>		var	157
<i>phus a</i>	353, 355	<i>Vireosylva gilva</i>	133

	Page.		Page.
<i>swainsonii</i> , <i>Vireosylva</i>	157	<i>Tachycineta meyeri</i>	87
<i>Swainson's Cliff Swallow</i>	51	<i>sclateri</i>	103
<i>Swallow</i> , American Barn	80	<i>thalassina</i>	93, 94, 95, 97, 98
<i>Bahama</i>	99	<i>brachyptera</i>	93, 98
<i>Bank</i>	73	<i>lepida</i>	93, 95, 98
<i>Blue-and-white</i>	69	<i>thalassina</i>	93, 95
<i>Cliff</i>	47	<i>thalassinus</i>	95, 97
<i>Coahuila Cliff</i>	56	<i>Tachycinetes bicolor</i>	90
<i>Coban</i>	66	<i>tahtica</i> , <i>Hirundo</i>	76
<i>Cuban Cliff</i>	53	<i>tahtensis</i> , <i>Hirundo</i>	76
<i>European Chimney</i>	79	<i>Talamanca Jay</i>	304
<i>Gosse's</i>	101	<i>Nightingale Wren</i>	668
<i>Jamaican Cliff</i>	54	<i>Tanagra dominica</i>	125, 127
<i>Kamchatkan Barn</i>	84	<i>dominicensis</i>	127
<i>Lesser Cliff</i>	50	<i>guyanensis</i>	226
<i>Mangrove</i>	90	<i>manicplum</i>	127
<i>Mexican Violet-green</i>	93	<i>tanneri</i> , <i>Troglodytes</i>	570, 573
<i>Panama Rough-winged</i>	63	<i>Tawny-bellied Wren</i>	533
<i>Rough-winged</i>	58	<i>Creepers</i>	470
<i>Rufous-rumped</i>	50	<i>-crowned Pachysylva</i>	218
<i>Salvin's Rough-winged</i>	62	<i>tecellata</i> , <i>Troglodytes</i>	576, 579
<i>Swainson's Cliff</i>	51	<i>Tehuantepec Green Jay</i>	309
<i>Tree</i>	87	<i>Telmatodytes</i>	473, 474, 476, 477, 486, 753
<i>Violet-green</i>	95	<i>arundinaceus</i>	491
<i>White-thighed</i>	67	<i>bewicki</i>	555, 560
<i>Yucatan Rough-winged</i>	61	<i>palustris</i>	491, 492,
<i>Swallows</i>	23	493, 494, 495, 496, 497, 545	
<i>Swinhoe's Wagtail</i>	6	<i>griseus</i>	488, 499
<i>sylvestris</i> , <i>Motacilla</i>	6	<i>iliacus</i>	488, 490, 492, 494
<i>Troglodytes</i>	582, 584	<i>marianæ</i>	488, 497, 753
<i>Sylvia cærulea</i>	718	<i>paludicola</i>	488,
<i>calendula</i>	707	495, 496, 497	
<i>cana</i>	720	<i>β. paludicola</i>	495, 497
<i>chivi</i>	132	<i>var. paludicola</i>	495
<i>cuvieri</i>	705	<i>palustris</i>	488, 489, 492, 497
<i>domestica</i>	581	<i>plesius</i>	488, 494
<i>dumicola</i>	715	<i>thryophilus</i>	488, 498, 499
<i>flavescens</i>	696	<i>Temax Wren</i>	620
<i>gilva</i>	154	<i>temporalis</i> , <i>Motacilla baicalensis</i> , <i>var.</i>	7
<i>ludoviciana</i>	539, 543, 546, 547	<i>tenuirostris</i> , <i>Anthus</i>	20
<i>leucogastra</i>	710, 714, 715, 725	<i>tesellatus</i> , <i>Troglodytes</i>	576, 579
<i>ochroleuca</i>	166	<i>Texas Chickadee</i>	406
<i>(Phyllopneuste) borealis</i>	696	<i>Jay</i>	337
<i>platensis</i>	481	<i>Wren</i>	555
<i>regulus</i>	701, 702	<i>texana</i> , <i>Aphelocoma</i>	325, 337
<i>sylvicultrix</i>	696	<i>Texas Vireo</i>	206
<i>troglodytes</i>	598	<i>texensis</i> , <i>Baeolophus bicolor</i>	386, 387
<i>Sylvicola decurtata</i>	218	<i>Parus (Baeolophus) bicolor</i>	386
<i>sylvicola Muscicapa</i>	166	<i>bicolor</i>	386
<i>sylvicultrix</i> , <i>Phyllopneuste</i>	696	<i>thalassina</i> , <i>Herse</i>	94, 97
<i>Phylloscopus</i>	696	<i>Hirundo</i>	92, 94, 96, 97, 98, 740
<i>Sylvia</i>	696	<i>Petrochelidon</i>	95, 98
<i>Sylviidæ</i>	376, 691	<i>Tachycineta</i>	93, 94, 95, 97, 98
<i>Sylviparus</i>	375	<i>thalassina</i>	93, 95
T.		<i>thalassinus</i> , <i>Cecropia</i>	94
<i>Tabasco Cactus Wren</i>	512	<i>Hirundo</i>	94, 98
<i>tachina</i> , <i>Petrocheledon lunifrons</i>	46,	<i>Tachycineta</i>	95, 97
47, 48, 50, 51, 52		<i>Thamnophilus agilis</i>	132
<i>Tachycineta</i>	24, 28, 92, 98	<i>thayeri</i> , <i>Parus gambeli</i>	411
<i>albilinea</i>	92	<i>thermophilus</i> , <i>Anthus</i>	18
<i>albilventris</i>	87	<i>thoracicus</i> , <i>Cyphorhinus</i>	671
<i>bicolor</i>	89, 90	<i>Hylophilus</i>	214
<i>cyaneoviridis</i>	100	<i>Leucoclepis</i>	671, 673
<i>lepida</i>	98	<i>thoracicus</i>	673
<i>leucorrhous</i>	87	<i>Thryophilus</i>	622, 628, 629

	Page.		Page.
thoracicus, <i>Thryothorus</i>	629	<i>Thryophilus nigricapillus nigricapillus</i>	622
Troglodytes.....	629	schottii.....	622, 623
Thriothonus.....	539	nisorius.....	631
arundinaceus.....	545	pallascens.....	624
berlandieri.....	547, 548	pleurostictus.....	621, 622, 631, 632
bewickii.....	554, 556, 557, 559, 560, 565, 566	nisorius.....	623, 630, 631
guttulatus.....	556	pleurostictus.....	622, 629
leucogaster.....	558	rampus.....	623, 631, 632
leucotis.....	638	rufalbus.....	623, 633, 634
louisianae.....	545	castanonotus.....	623
rufalbus.....	638	.....	623, 634, 635
striatulus.....	575	cumanensis.....	632
Thryomanes.....	478, 479, 548	polioleura.....	633
albinucha.....	549, 551	var. polioleura.....	633
bewickii.....	555	rufalbus.....	623, 632, 633, 634
charienturus.....	562, 564	var. rufalbus.....	634
drymoeus.....	565	semibadius.....	622, 627, 628
leucogaster.....	556, 558, 560	sinaloa.....	621, 623, 626
a. bewickii.....	555	cinereus.....	623, 626
b. leucogaster.....	556	russeus.....	623, 627
c. spilurus.....	564, 566, 567	sinaloa.....	623, 624, 626
var. leucogaster.....	556, 558	thoracicus.....	622, 629, 629
spilurus.....	561, 562, 564, 566, 567	zeledoni.....	624, 642
β. spilurus.....	564	thryophilus, <i>Telmatodytes palustris</i>	488, 494, 499
bewickii.....	549, 550, 555, 558	Thyorchilus.....	479, 606
bairdi.....	550, 559, 560	browni.....	606
bewickii.....	549, 552, 555	Thryothorus.....	476, 478, 479, 539, 636
calophonus.....	550, 555, 556, 567	albigularis.....	532
cerroensis.....	550, 552	albinucha.....	532
charienturus.....	550, 551, 562	albipectus.....	638, 641
cryptus.....	551, 555, 557	arundineus.....	491, 753
drymoeus.....	550, 553, 555	atrogularis.....	531
eremophilus.....	551, 557, 559	bairdi.....	556, 557, 558, 559, 560, 561, 562, 563
leucogaster.....	556, 558	berlandieri.....	547, 548
leucophrys.....	550, 553	bewickii.....	554, 555, 556, 558, 559, 560, 566
murinus.....	551, 559	bairdi.....	562
nesophilus.....	550, 562, 563	leucogaster.....	556, 558
percnus.....	550, 560, 561	murinus.....	557, 558, 559
spilurus.....	550, 563, 564, 565, 567	spilurus.....	564, 565, 567
brevicauda.....	567	γ. spilurus.....	564
brevicaudus.....	549, 551, 567, 568	bewickii.....	554, 555, 556, 558, 559, 566
insularis.....	548, 549, 551, 568, 569	bairdi.....	557, 563
leucophrys.....	563	bairdi.....	557, 558, 560, 561
spilurus.....	564	a. bewickii.....	555
Thryophilus.....	476, 479, 620	leucogaster.....	556, 558
albipectus galbraithi.....	638	b. leucogaster.....	556, 558, 560
castaneus.....	622, 624, 625, 626	var. leucogaster.....	556, 558, 560
costaricensis.....	622, 624, 626	murinus.....	559
galbraithi.....	638	spilurus.....	561, 562, 564, 565, 567
galbraithii.....	623, 624	c. spilurus.....	564, 565, 567
conclitus.....	624, 638	var. spilurus.....	568
galbraithii.....	624, 637	.....	564, 565, 567
hyperythrus.....	534	var.	566
leucotis.....	638	brevicauda.....	568
ludovicianus.....	545	brevicaudus.....	568
modestus.....	624, 640, 641	brunneus.....	629
elutus.....	624, 640, 641	castaneus.....	625, 626
modestus.....	624, 639, 640, 641	cerroensis.....	562
pullus.....	624, 641, 642	eidoux.....	481
nigricapillus.....	622, 627	fasciati ventris.....	529, 532, 533
		melanogaster.....	533
		fasciato-ventris.....	529, 532
		fasciatoventris.....	532
		albigularis.....	532
		melanogaster.....	533

	Page.		Page.
<i>Thryothorus felix</i>	537, 538, 539, 641	<i>Thryothorus spilurus</i>	564, 565, 567
<i>a. felix</i>	537, 538	<i>stellaris</i>	484
<i>grandis</i>	538	<i>thoracicus</i>	629
<i>lawrencii</i>	539	<i>tibialis</i> , <i>Atticora</i>	68
<i>β lawrencii</i>	539	<i>Microchelidon</i>	68
<i>galbraithii</i>	638	<i>Neochelidon</i>	67, 68
<i>galbraithii</i>	638	<i>Petrochelidon</i>	67, 68
<i>genibarbis</i>	527	<i>Tichodroma</i>	377, 460
<i>grenadensis</i>	593	<i>Tichodrominae</i>	461
<i>guadeloupensis</i>	595	<i>Titlark</i>	19
<i>guttatus</i>	517	<i>Titmouse</i>	375
<i>hyperythrus</i>	534	<i>Titmouse</i> , <i>Ashy</i>	391
<i>latus</i>	529	<i>Black-crested</i>	384
<i>lawrencii</i>	539	<i>Bridled</i>	393
<i>magdalene</i>	539	<i>Crested</i>	383
<i>leucogaster</i>	556, 558	<i>Gray</i>	390
<i>leucophrys</i>	563	<i>Plain</i>	387
<i>leucostictus</i>	613	<i>San Diego</i>	389
<i>leucotis</i>	640	<i>San Francisco</i>	389
<i>littoralis</i>	545	<i>Sennett's</i>	394
<i>longirostris</i>	634	<i>Tufted</i>	381
<i>ludovicianus</i>	543, 545, 546, 547, 548	<i>Wollweber's</i>	392
<i>berlandieri</i>	541,	<i>townsendi</i> , <i>Cinclus</i>	681
542, 546, 547, 548		<i>Myiadestes</i>	123
<i>b. berlandieri</i>	547	<i>Tree Swallow</i>	87
<i>var. berlandieri</i>	547, 548	<i>Tres Marias Vireo</i>	202
<i>lomitensis</i>	541, 547, 548	<i>tricolor</i> , <i>Regulus</i>	702
<i>ludovicianus</i>	541,	<i>trinitatis</i> , <i>Cyclorhis flavipectus</i>	227
543, 545, 546		<i>tristis</i> , <i>Anthus</i>	20
<i>a. ludovicianus</i>	545	<i>trivialis</i> , <i>Alauda</i>	10
<i>var. ludovicianus</i>	545	<i>trochilus</i> , <i>Motacilla</i>	695, 697
<i>miamensis</i>	541,	<i>Phylloscopus</i>	697
542, 545, 546		<i>Troglodytes</i>	478, 479, 569
<i>miamiensis</i>	546	<i>aedon</i>	569, 571, 579, 581, 583, 587
<i>maculipectus</i>	535, 536	<i>aedon</i>	571, 579, 581, 583
<i>canobrunneus</i>	536	<i>aztecus</i>	586
<i>cano-brunneus</i>	536	<i>marianae</i>	586
<i>umbrinus</i>	536	<i>parkmani</i>	585
<i>martinicensis</i>	594	<i>var. parkmani</i>	585
<i>melanogaster</i>	533	<i>parkmanii</i>	571, 582, 583, 584
<i>mesoleucus</i>	591	<i>parkmanni</i>	585
<i>mexicanus</i>	653, 656, 657, 658, 659, 662	<i>β. parkmanni</i>	585
<i>miamensis</i>	546	<i>var. parkmanni</i>	585
<i>modestus</i>	640, 641, 642	<i>parkmannii</i>	585
<i>modulator</i>	672	<i>aedon</i>	580, 583, 584
<i>murinus</i>	557, 558, 569	<i>var. aedon</i>	581
<i>musicus</i>	592	<i>aztecus</i>	585, 586
<i>nigricapillus</i>	622, 625, 627	<i>parkmanni</i>	585
<i>nisorius</i>	631	<i>β. parkmanni</i>	585
<i>obsoletus</i>	647	<i>var. parkmanni</i>	585
<i>palustris</i>	491	<i>alascensis</i>	602, 603, 604
<i>petenicus</i>	562	<i>albifrons</i>	657
<i>platensis</i>	481	<i>albinucha</i>	552
<i>pleurostictus</i>	630	<i>americana</i>	581, 582
<i>poliopterus</i>	633	<i>americanus</i>	581, 582, 584
<i>polyglottus</i>	481, 486	<i>(Anorthura) hyemalis</i>	599, 600
<i>rufalbus</i>	620, 633, 634	<i>arundinaceus</i>	491, 539, 545
<i>rufescens</i>	594, 595	<i>atrogularis</i>	531
<i>ruficeps</i>	537	<i>aztecus</i>	586
<i>rutilans</i>	529	<i>beani</i>	570, 573, 574
<i>rutilus</i>	529, 534	<i>berlandieri</i>	547
<i>hyperythrus</i>	534	<i>bewickii</i>	548,
<i>schottii</i>	627	554, 556, 557, 559, 560, 565, 566	
<i>semibadius</i>	628	<i>var. leucogaster</i>	558
<i>sinaloa</i>	636	<i>brachyurus</i>	620

	Page.		Page.
<i>Troglodytes brevirostris</i>	484	<i>Troglodytes obsoleta</i>	647
<i>browni</i>	605, 606	<i>obsoletus</i>	643
<i>brunneicollis</i>	571, 587, 589	646, 647, 649, 650, 651, 653	
<i>brunneicollis</i>	571,	<i>ochraceus</i>	478, 572, 580
586, 587		<i>omnisonus</i>	461
<i>cahooni</i>	572, 588	<i>palustris</i>	490, 492, 493, 495, 496
<i>nitidus</i>	571, 588	<i>parkmani</i>	584
Subsp. <i>a.</i> <i>Troglodytes rufociliatus</i>	589	<i>parkmanii</i>	584
<i>tus</i>	589	<i>parkmanni</i>	584
<i>cahooni</i>	588	<i>parvulus alascensis</i>	604
<i>castaneus</i>	625	var. <i>alascensis</i>	604
<i>cumanensis</i>	623	<i>hyemalis</i>	600
<i>domestica</i>	581	var. <i>hyemalis</i>	599, 600, 601
<i>domesticus</i>	581	<i>peninsularis</i>	570, 574, 575
<i>parkmani</i>	585	<i>peteniticus</i>	532
<i>a. domesticus</i>	581	<i>pleurostictus</i>	631
Subsp. <i>γ.</i> <i>Troglodytes insularis</i>	569	<i>poliopterus</i>	633
Subsp. <i>α.</i> <i>Troglodytes parkmanni</i>	585	<i>rufalbus</i>	633, 634
<i>europæus</i>	600	<i>rufescens</i>	572, 584
<i>fasciatoventris</i>	582	<i>rufociliatus</i>	572, 588, 590
<i>felix</i>	587	<i>sinaloa</i>	636
<i>fulvus</i>	584	<i>solstitialis</i>	478, 572, 580
<i>fervus</i>	576, 578, 581	<i>spilurus</i>	558, 561, 562, 563, 564, 565
<i>intermedius</i>	578	<i>stellaris</i>	480, 483, 486, 495
<i>galbraithi</i>	638	<i>striatulus</i>	571, 576
<i>grenadensis</i>	572, 592, 593	<i>inquietus</i>	571
<i>guadeloupensis</i>	572, 595	<i>sylvestris</i>	582, 584
<i>guttatus</i>	610	<i>tanneri</i>	570, 573
<i>hiemalis</i>	587, 598, 599, 600	<i>tecellata</i>	576, 579
<i>pacificus</i>	601, 602	<i>tessellatus</i>	576, 579
<i>hyemalis</i>	587	<i>thoracicus</i>	629
var. <i>alascensis</i>	604	<i>troglodytes, Anorthura</i>	598
<i>hyemalis</i>	599	<i>Motacella</i>	572, 595, 596
<i>pacificus</i>	601	<i>Sylvia</i>	598
<i>β. pacificus</i>	601	<i>Troglodytidae</i>	473
var. <i>pacificus</i>	601, 602	<i>Trogon mexicanus</i>	607
<i>hypaëdon</i>	571, 576, 579	<i>Trypanocorax</i>	256
<i>insularis</i>	568, 569	<i>Tufted Titmouse</i>	315
<i>intermedius</i>	571, 577, 578, 579	<i>turcosa, Cyanolyca</i>	313
<i>hypaëdon</i>	571	<i>Turdidae</i>	113
<i>intermedius</i>	571, 578	<i>Turdus bambla</i>	665
<i>inquietus</i>	571, 576, 578	<i>cantans</i>	674
<i>leucogastra</i>	556, 558, 560, 617, 619	<i>coraya</i>	527
<i>leucophrys</i>	608, 609, 610, 614, 615, 616	<i>garrulus</i>	108
<i>leucostictus</i>	608	<i>hispaniolensis</i>	129
<i>longirostris</i>	634	<i>interscapularis</i>	451
<i>ludovicianus</i>	543	<i>variegatus</i>	500
<i>maculipictus</i>	535	<i>virens</i>	139
<i>martinicensis</i>	572, 593, 594	<i>turneri, Parus (Poecile) atricapillus</i>	402
<i>mesoleucus</i>	572, 591	<i>Penthestes atricapillus</i>	395, 402
<i>mexicanus</i>	656, 658, 659, 662	<i>typica, Gazzola</i>	256
<i>modestus</i>	640	<i>Tyrannus tyrannus</i>	242
<i>monticola</i>	572	<i>tytleri, Chelidon</i>	85
<i>murarius</i>	656	<i>Hirundo</i>	77, 78, 84, 85
<i>murinus</i>	559		
<i>musculus</i>	571		
<i>hypaëdon</i>	571, 578, 579		
<i>inquietus</i>	570, 571, 575, 576		
<i>intermedius</i>	571, 576, 578		
<i>striatulus</i>	575		
<i>musicus</i>	572, 591, 592		
<i>nigricapillus</i>	622		

U.

<i>ultramarina</i>	342
<i>Aphelocoma</i>	325, 339, 341, 343, 344
<i>Cyanocitta</i>	343, 344
<i>ultramarina</i> var. ...	344
<i>Ultramarine Jay</i>	343
<i>ultramarinus</i>	339
<i>Corvus</i>	330, 333, 339, 341, 343, 344
<i>Cyanocitta</i>	343
<i>Cyanocorax</i>	333, 339
<i>Cyanurus</i>	343, 344

	Page.
ultramarinus, Garrulus	330, 339
umbrinus, Phegopedius maculipectus ...	529,
	535, 536
unalaschkensis, Hirundo	84
erythrogastra	84
Unalaska Wren	602
ungava, Parus hudsonicus	414
unicolor, Aphelocoma	326, 339, 344, 345, 749
unicolor	326, 344, 345, 749
Cinclus	681
mexicanus	676, 677, 679
Cinnycerthia	477
Cyanocitta	344, 345
Cyanocorax	344, 345, 749
Cyanurus	344
Garrulina	749
Hydrobata	681
Unicolored Jay	344
unirufa, Limnornis	477
Uroleuca	346
pileata	305
Uropelia	617
leucogastra	619
Uropellus	617
uropygalis, Cotile	64
Cotyle	64
Stelgidopteryx	64, 65
ruficollis	57,
	58, 62, 63, 65
V.	
vaillanti, Cyanopollus	286
varia, Pica	287
Sitta	453
variegatus, Turdus	500
varius, Periparus	379
Vera Cruz Vireo	187
Vera Paz Vireo	166
vera, Poecetes albirica	396
Verdin	420
Cape	422
Vermivora brevipennis	218
versicolor, Hirundo	35
verticalis, Vireolanus pulchellus	222, 224
vespertina, Hirundo bicolor, var.	90
vicinior, Vireo	179, 202, 203, 204
Vigors's Wren	565
Vinaceous-throated Pipit.	15
violacea, Cecropis	35
Hirundo	35
violaceus, Corvus	256
Cyanocorax	303, 304
Violet-green Swallow	95
Mexican	93
virens, Icteria	166
Turdus	139
Vireo	176, 129, 130, 212, 213
agilis	146
alleni	192
Allen's	192
altioqua barbatula	139
altioquus	139, 142
var. barbatulus	143
amauronotus	159
strenuus	159
Anthony's	196
approximans	192

	Page.
Vireo Arizona	207
atricapilla	182
atricapillus	177, 181, 182
atripennis	139
bairdi	177, 180, 181
Baird's	180
Barbados	140
barbatula	143
bartramii	182
Belize	184
Bell's	204
belli	206, 207, 208
pusillus	208
bellii	176, 179, 205, 206, 207, 208
arizonæ	180, 207, 208, 743
bellii	180, 204, 206
medius	180, 206, 207
pusillus	208, 209
Bermuda	185
bermudianus	186
Black-capped	181
-whiskered	141
bogotensis	150
Brown-capped	159
calidris	139, 140, 141, 143, 741
barbatula	139, 140, 142, 143
β. V. barbatula	140
barbatulus	143
α. V. calidris	139
dominicana	141
cantatrix	185
carmioli	177, 179, 199, 200
Carmioli's	199
Carmioli's Shrike	224
cassini	174, 175
cassinii	174, 175
Cassin's	172
Chiapas	159
Chihuahuan Warbling	158
Chiriqui	161
chivi	132
agilis	147
cinereus	136
crassirostris	190
alleni	178, 192
approximans	178, 192
crassirostris	178, 189, 191
flavescens	178, 190, 191, 192
Du Bus' Shrike	225
Dwarf	204
flavifrons	161, 165, 168
flaviviridis	146, 147, 150
flavoviridis	146, 147
forreri	147
forreri	147
Forrer's	146
Frazer's	199
gilva	155
gilvus	142, 154, 155, 156
a. gilvus	155
swainsoni	157, 158
a. gilvus	155
b. swainsoni	157
swainsoni b. swainsoni	158
var. swainsoni	157
swainsonii	157

	Page.		Page.
<i>Vireo gilvus</i> var. <i>swainsonii</i>	157	<i>Vireo</i> , Philadelphia	151, 158
Golden	201	philadelphicus	152, 158
Grand Cayman	186	Plumbeus	170
Gray	202	plumbeus	171
Green Eshrike	223	propinquus	167
-winged	212	puallus	208, 209, 210
gundlachi	189	albatus	210
gundlachii	176, 177, 178, 188, 189	Red-eyed	147
Gundlach's	188	Saint Andrews	143
huttoni	742	Lucas	176
huttoni	178, 195, 196, 197, 212	San Miguel	147
cognatus	179, 199, 743	Santa Cruz Island	743
huttoni	179, 195, 196, 197	semiflavus	194
insularis	196	Small White-eyed	186
mailliardorum	743	solitarius	167, 168, 169, 170, 172, 174, 175
mexicanus	179, 196, 198, 742	alticola	170
obscurus	179, 196	cassini	175
stephensi	179, 197, 198, 199	var. <i>cassini</i>	174
stephensoni	198	cassinii	175, 176
huttonii	196, 197	var. <i>lucasana</i>	176
Hutton's	195	lucasanus	176
hypochryseus	177, 201, 202, 212	plumbeus	172
hypochryseus	179, 201, 202	var. <i>plumbeus</i>	171
sordidus	179, 202	solitarius	169
insulanus	147	Solitary	167
Jamaican	187, 200	Stephens's	197
Josephæ	134, 159, 160, 161	superclivaris	200
Key West	186	swainsoni	157
(Lanivireo) <i>cassini</i>	174	swainsonii	157
flavifrons	166	Texas	206
huttoni	196	Tres Marias	202
noveboracensis	185	Vera Cruz	187
solitarius	169	Vera Paz	166
Large-billed	189	vicinior	179, 202, 203, 204
latimeri	180, 210, 211	californicus	204
Latimer's	210	virescens	132, 150
Least	208	(Vireosylva) <i>altiloquus</i>	142
longirostris	139, 141, 142	flavoviridis	146
magister	185, 186	olivacea	150
mailliardorum	743	virescens	132
Mexican	196	(Vireosylva) <i>olivaceus</i>	150
modestus	179, 200, 201	Warbling	153
Mountain	169	Western Warbling	155
musculus	176, 185	White-eyed	183
naus	179, 204	Yellow-green	144
noveboracensis	185	Yellow-throated	163
noveboracensis	185	<i>Vireolanus</i>	130, 221
noveboracensis	177, 178, 184,	eximius	223
185, 186, 187, 190, 196, 201		melitophrys	221, 223, 225, 226, 745
bermudianus	177, 185, 186	goldmani	744, 745
maynardi	177, 178, 186, 189	pulchellus	222, 223, 224
micrus	178, 186, 187	pulchellus	222, 223, 224
noveboracensis	177,	viridiceps	222, 224, 744
183, 185, 186		<i>Vireonella</i>	176
Ochraceous	193	<i>Vireonidae</i>	128, 130, 161, 176, 211, 212, 214, 226
ochraceus	178, 193, 194	<i>Vireoninae</i>	223
subsp. <i>a</i> <i>Vireo pallens</i>	194	<i>Vireos</i>	123
ochroleucus	166	<i>Vireosylva</i>	129, 130, 161, 213
Old Providence	192	agilis	133
olivacea	139, 150	altiloqua	142
olivaceus	142, 149, 150	amauronota	150, 161
Orizaba	158	amauronota	133
Osburn's	218	strenua	158, 159
Pale	194	callidris barbadensis	131
pallens	178, 194	barbatula	131, 141
Panama Shrike	224		
perquisitor	178, 187, 188		

	Page.
<i>Vireosylva calidris calidris</i>	131,
134, 137, 140, 141, 149	
<i>canescens</i>	131, 143
<i>grandior</i>	131, 143
<i>caymanensis</i>	131, 136
<i>chivi</i>	132
<i>agilis</i>	132, 147
<i>chivi</i>	132
<i>flavoviridis</i>	132, 145
<i>flavoviridis</i>	132, 144, 147
<i>forreri</i>	132, 146
<i>gilva</i>	133
<i>brewsteri</i>	133, 156, 158, 741
<i>gilva</i>	133, 134, 153, 155
<i>swainsoni</i>	154, 155, 158
<i>swainsonii</i>	133
<i>insulanus</i>	132, 147
<i>josephæ</i>	134
<i>chiriquensis</i>	134, 161
<i>costaricensis</i>	134, 159, 161, 741
<i>josephæ</i>	134, 159
<i>magister cinerea</i>	131, 136
<i>magister</i>	131, 134, 136
<i>olivacea</i>	131, 133, 134, 139, 147, 150
<i>philadelphica</i>	133, 151, 152
<i>Vireosylva</i>	130
<i>agilis</i>	132
<i>flavoviridis</i>	146
<i>alticola</i>	139, 140, 142
<i>atripennis</i>	139
<i>bogotensis</i>	150
<i>calidris</i>	139, 140, 141
<i>barbadense</i>	141
<i>var. barbadense</i>	141
<i>barbatula</i>	142
<i>var. barbatulus</i>	142
<i>var. calidris</i>	139
<i>dominicana</i>	141
<i>var. dominicana</i>	141
<i>canescens</i>	144
<i>chivi</i>	132
<i>cubanensis</i>	153
<i>flavifrons</i>	166
<i>flavo-viridis</i>	146
<i>flavoviridis</i>	145, 147, 150
<i>var. flavoviridis</i>	146
<i>frenata</i>	140
<i>gilva</i>	155, 157
<i>var. josephæ</i>	134, 159, 160
<i>swainsoni</i>	158
<i>β swainsoni</i>	158
<i>var. swainsoni</i>	157
<i>gilvus</i>	155
<i>var. gilvus</i>	155
<i>var. swainsoni</i>	157
<i>grandior</i>	143
<i>huttoni</i>	197
<i>virescens</i>	132
<i>josephæ</i>	160, 161
<i>magister</i>	135
<i>olivacea</i>	139, 150
<i>var. chivi</i>	132
<i>olivaceus</i>	150
<i>var. olivaceus</i>	150
<i>philadelphica</i>	151, 152
<i>philadelphicus</i>	152

	Page.
<i>Vireosylva plumbea</i>	171
<i>propinqua</i>	167
<i>solitaria</i>	169, 174, 175
<i>swainsoni</i>	157
<i>swainsonii</i>	157
<i>virginalis</i>	139
<i>virescens</i> , <i>Anthus</i>	20
<i>Vireo</i>	132, 150
(<i>Vireosylva</i>)	132
<i>Vireosylva</i>	132
<i>virginalis</i> , <i>Vireosylva</i>	139
<i>viridiceps</i> , <i>Vireolanius pulchellus</i>	222, 224, 744
<i>viridicyanea</i> , <i>Cyanolyca</i>	313
<i>viridiflava</i> , <i>Pachysylvia</i>	214, 216, 221, 744
<i>viridiflavus</i> , <i>Hylophilus</i>	221
<i>flavipes</i>	221
<i>viridis</i> , <i>Hirundo</i>	90
<i>vivida</i> , <i>Xanthoura luxuosa</i>	306, 309, 310
<i>vociferus</i> , <i>Corvus</i>	303
<i>fallorhinus</i>	303
<i>mexicanus</i>	299, 303
<i>vulgaris</i> , <i>Motacilla flava</i>	8
<i>Pica</i>	287

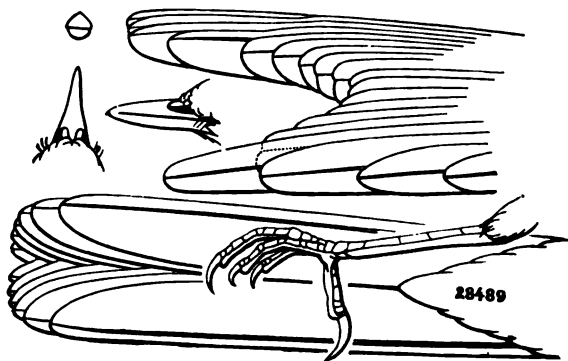
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<i>Wagtail</i> , Alaskan Yellow	8
<i>Cinereous</i>	5
<i>Hudsonian</i>	15
<i>Swinhoe's</i>	6
<i>White</i>	4
<i>Wagtails and Pipits</i>	1
<i>Warbler</i> , Alaskan Willow	696
<i>Warblers</i>	691
<i>Warbling Vireo</i>	153
<i>Chihuahuan</i>	158
<i>Western</i>	155
<i>Waxwing</i> , Bohemian	105
<i>Cedar</i>	109
<i>Waxwings</i>	103, 104, 113
<i>Western Crow</i>	270
<i>Gnatcatcher</i>	720
<i>Golden-crowned Kinglet</i>	702
<i>House Wren</i>	582
<i>Marsh Wren</i>	494
<i>Martin</i>	35
<i>Warbling Vireo</i>	155
<i>Winter Wren</i>	600
<i>White-breasted Nuthatch</i>	441
<i>Florida</i>	444
<i>-eyed Vireo</i>	183
<i>Vireo, Small</i>	186
<i>-headed Cactus Wren</i>	503
<i>Jay</i>	370
<i>-lored Gnatcatcher</i>	725
<i>-naped Nuthatch</i>	459
<i>Palm Chat</i>	127
<i>-necked Raven</i>	265
<i>-rumped Shrike</i>	246
<i>-thighed Swallow</i>	67
<i>-tipped Brown Jay</i>	301
<i>Wagtail</i>	4
<i>wiedii</i> , <i>Cyanocephalus</i>	286
<i>Willow Warbler</i> , Alaskan	696
<i>Winter Wren</i>	597
<i>Western</i>	600

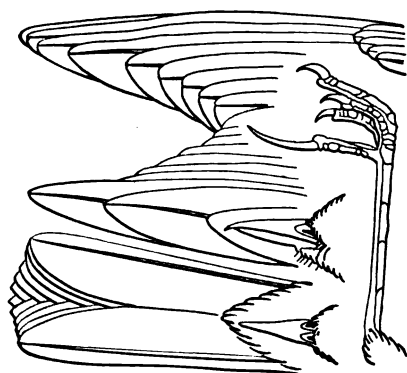
	Page.		Page.
wollweberi, <i>Aphelocoma sieberii</i>	325,	Wren, Cozumel.....	577
	340, 341, 342	Deppe's Banded.....	621
<i>Baeolophus</i>	380	Desert.....	557
wollweberi..	381, 392, 393	Dominican.....	594
<i>Lophophanes</i>	393, 394	Dotted Canyon.....	659
<i>Parus</i>	393, 394	Durango.....	599
(<i>Lophophanes</i>).....	393, 394	Florida.....	545
Wollweber's Titmouse.....	392	Galbraith's.....	657
woodhousei, <i>Aphelocoma</i>	354, 355, 357	Giraud's Canyon.....	657
<i>floridana</i>	334	Gould's.....	615
var.....	334	Gray-crowned Wood.....	615
var. wood-		Grenada.....	592
housei b.	334	Guadalupe.....	567
<i>Cyanocitta</i>	334	Rock.....	609
<i>californica</i> var....	334	Guadeloupe.....	596
<i>floridana</i> var....	334	Guatemalan Marsh.....	454
woodhouseii, <i>Aphelocoma</i> ... 324, 325, 335, 336, 337		Spotted-breasted.....	525
<i>Cyanocitta</i>	334, 335, 337	Guaymas Cactus.....	517
<i>Cyanurus</i>	335	Guerrero Wood.....	616
Woodhouse's Jay.....	333	Happy.....	536
woodhouseii, <i>Aphelocoma</i>	334	Hartlaub's.....	559
<i>floridana</i>	334	Hooded Cactus.....	594
<i>Cyanocitta</i>	334	House.....	579
<i>floridana</i>	334	Huitzilac Cactus.....	513
var.....	334	Intermediate Canyon.....	600
Wood Wren, Chestnut.....	615	Irard.....	599
<i>Chiriqui</i>	613	Jalisco.....	599
Gray-crowned.....	615	Kadiak.....	602
Guerrero.....	616	Lawrence's.....	599
Mexican.....	616	Musician.....	673
Pittier's.....	612	Lomita.....	547
Selater's.....	610	Long-billed Marsh.....	499
Worthington's Marsh Wren.....	499	Louisiana Marsh.....	495
Wren, Ashy.....	636	Magdalena Island.....	539
<i>Attu</i>	604	Mangrove.....	571
Baird's.....	559	Marion's Marsh.....	497
Banded Cactus.....	519	Martinique.....	593
Bay.....	624	Mexican Cactus.....	521
Berlandier's.....	546	Canyon.....	655
Bewick's.....	552	Rock.....	648
Black-bellied.....	532	Wood.....	616
-tailed Cactus.....	506	Morelos.....	567
-throated.....	530	Nicaraguan Banded.....	631
Boucard's Cactus.....	524	Rock.....	653
Brown's.....	606	Nightingale.....	607
Brown-throated.....	586	Oaxaca House.....	575
Bryan's Cactus.....	519	Palenque.....	609
Cabanis'.....	639	Panama.....	649
Cabot's.....	551	Black-bellied.....	531
Cactus.....	522	House.....	575
Cahoon's.....	588	Marsh.....	596
California.....	541	Nightingale.....	609
Marsh.....	496	Pittier's Wood.....	612
Canyon.....	658	Prairie Marsh.....	491
Cerro's Island.....	562	Rock.....	646
Chancel Rock.....	651	Rufous and white.....	623
Chestnut-backed.....	633	-browed.....	595
Wood.....	615	-naped Cactus.....	597
Chiapas.....	641	Russet.....	627
Cactus.....	504	Sacramento.....	595
Chiriqui Wood.....	613	Salvador Rock.....	653
Clarion Island.....	573	Salvin's.....	627
Colima.....	619	San Benedicto Rock.....	649
Costa Rican Bay.....	625	Clemente.....	595
Cactus.....	512	Diego.....	561
House.....	576	Miguel.....	625

	Page.		Page.
Wren, Santa Cruz	582	Xanthoura luxuosa luxuosa	306, 308
Lucia	591	var. luxuosa	309
Schott's	626	speciosa	306, 310, 311, 312
Sclater's Banded	629	vvida	306, 309, 310, 311
Cactus	508	luxuosus	307
Wood	610	yncas chloronota	311
Seattle	586	var. luxuosa	309
Short-billed Marsh	482	Xanthura	305
Sinaloa	635	beecheii	316
Socorro	568	cyanocapilla	311
Spotted-breasted	534	guatemalensis	310
Cactus	526	luxuosa	307, 309, 310, 311
Rock	651	luxuriosa	309
Striped-breasted	628	melanocyanea	318
St. Lucas Cactus	539	sanblasiana	314
St. Vincent	591	yncas var. luxuosa	309
Tabasco Cactus	512	yucatanica	315
Talamanca Nightingale	668	Xantus' Jay	331
Tawny-bellied	533	Xerophila	375, 377
Temax	620		
Texan	555	Y.	
Unalaska	602	Yellow-billed Magpie	291
Vigors'	565	-green Pachysylvia	321
Western House	582	Vireo	144
Marsh	494	Large-billed Vireo	191
Winter	600	-throated Vireo	163
White-headed Cactus	503	Wagtail, Alaskan	8
Winter	597	yncas, Corvus	305, 309
Worthington's Marsh	499	Cyanocorax	307, 309, 311
Yucatan Cactus	516	Yucatan Brown Jay	303
Spotted-breasted	536	Cactus Wren	516
Zeledon's	642	Gnatcatcher	729
Zempoaltepec	588	Jay	315
Wrens	478	Pepper-Shrike	229
Wren-Tit	656	Rough-winged Swallow	61
Dusky	659	Spotted-breasted Wren	536
Pallid	659	yucatanensis, Cyclarhis flaviventris	227, 230
Ruddy	658	yucatanica, Cissilopha	312, 313, 315
Wren-Tits	663	Cissilopha	315
X.		Cyanocitta	315
Xanthocitta	305	Cyanolyca	747
luxuosa	308	Xanthura	315
xanthocoelia, Bombyciphora	112	Yukon Chickadee	402
Xanthocorys	11		
Xanthoura	305	Z.	
guatemalensis	311	Zacatecas Jay	341
guatemalensis	311	zeledoni, Cyanocorax affinis	304, 305
incas var. guatemalensis	311	Thryophilus	624, 642
var. luxuosa	309	Zeledon's Wren	642
luxuosa	306, 308, 310	zelotes, Certhia familiaris	463, 468, 469
cyanocapilla	311	Zempoaltepec Wren	588
glaucescens	306, 307, 308, 309	zonatus, Campylorhynchus	511, 512, 513
guatemalensis	311	Heleodytes	502
var. guatemalensis	311	zonatus	502, 510
guatemalensis	306, 310	Picolaptes	511, 512, 513

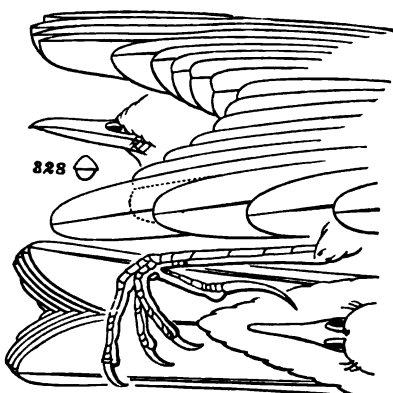
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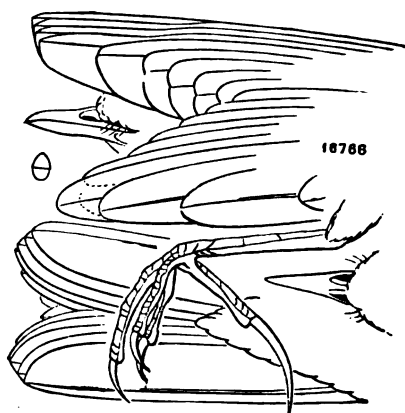
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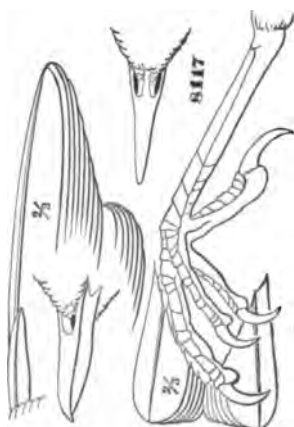
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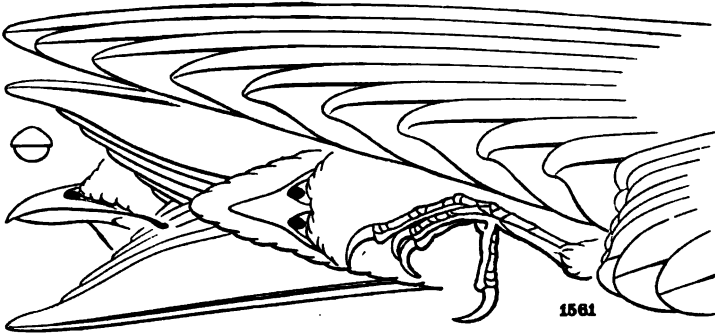
3. *ANTHUS pensilvanicus*.



4. *Anthus (NEOCORYS) spragueii*.



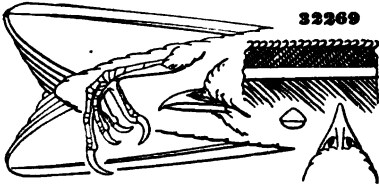
5. *CINCLUS mexicanus*.



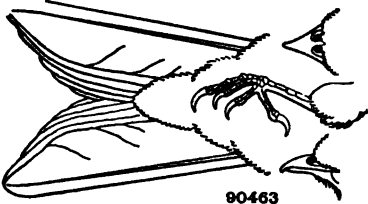
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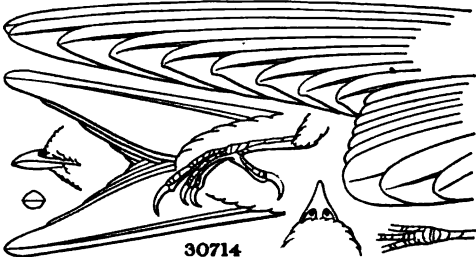
2. *PETROCHELIDON lunifrons*.



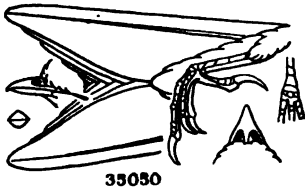
3. *STELGIDOPTERYX serripennis*.



4. *NEOCHELIDON tibialis*.

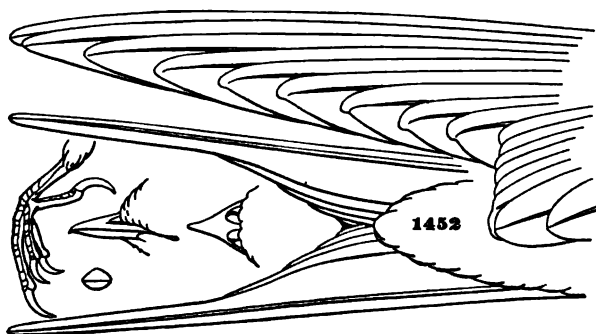


5. *NOTIOCHELIDON pileata*.

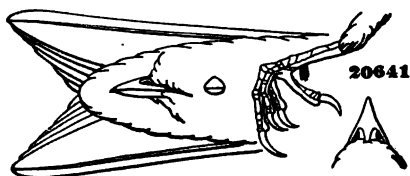


6. *PYGOCHELIDON cyanoleuca*.

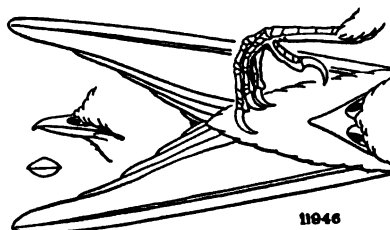




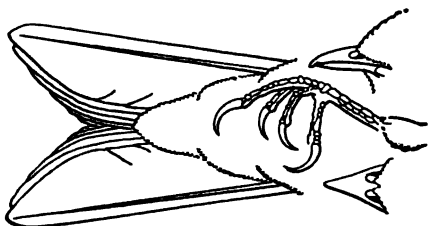
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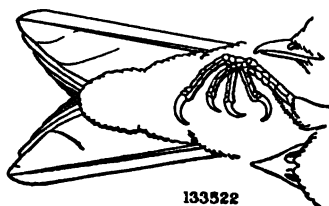
2. *RIPARIA riparia*.



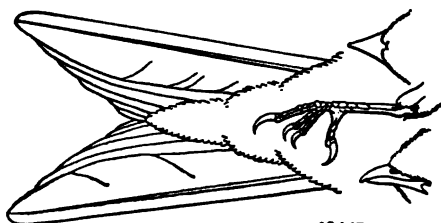
3. *CALLICHELIDON cyaneoviridis*.



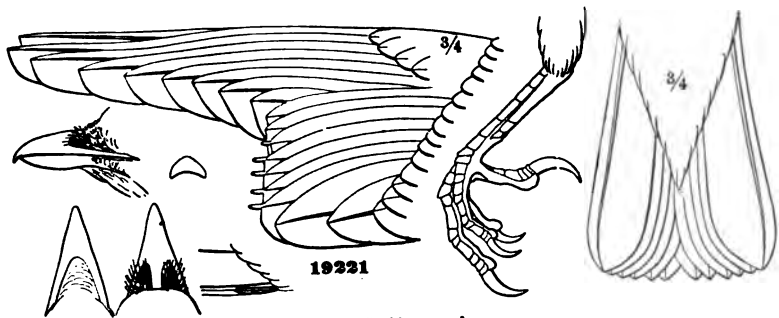
4. *IRIDOPROCNE bicolor*.



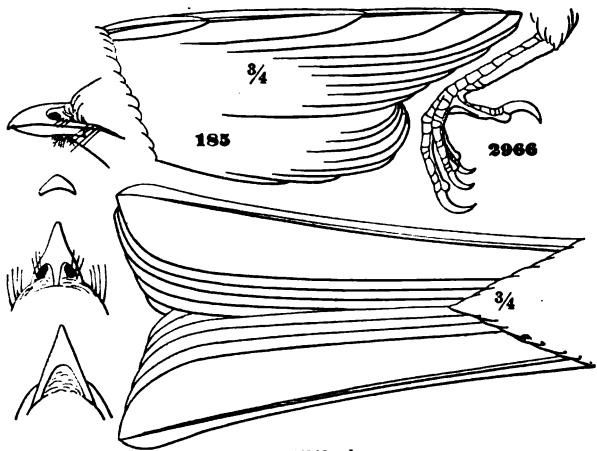
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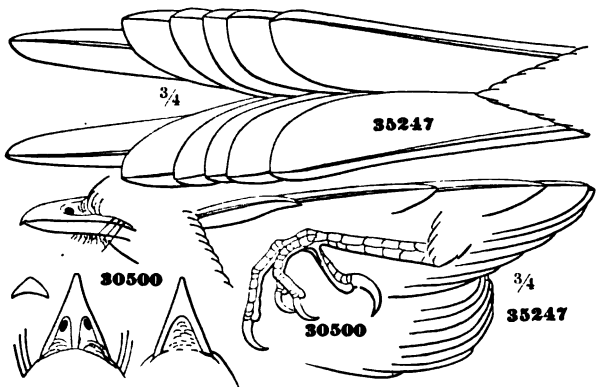
6. *LAMPROCHELIDON solitarius*.



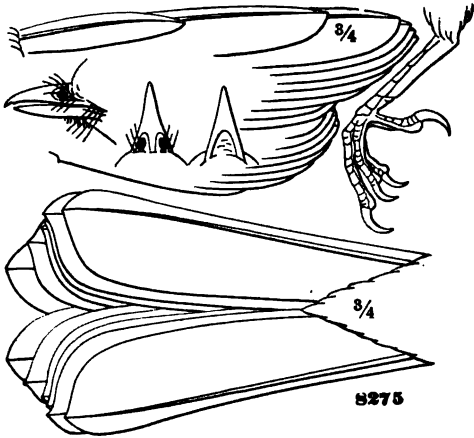
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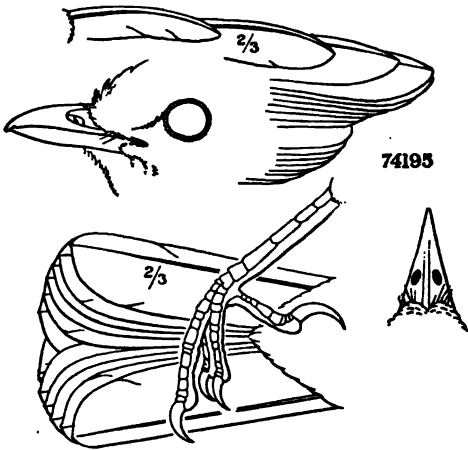
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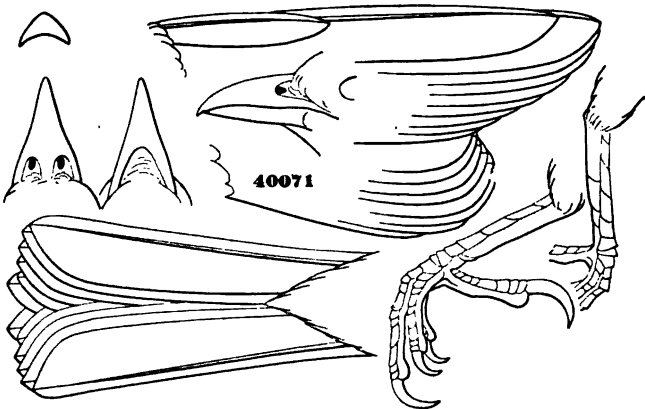
3. Ptilogony (SPHENOTELUS) caudatus.



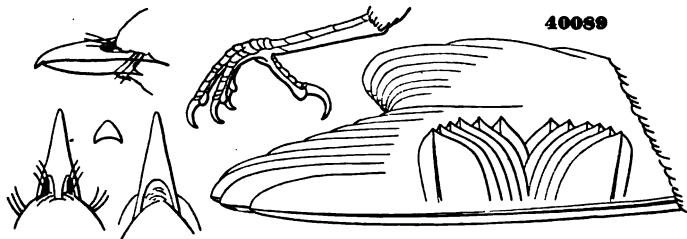
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2. PHAINOPTILA melanoxantha.



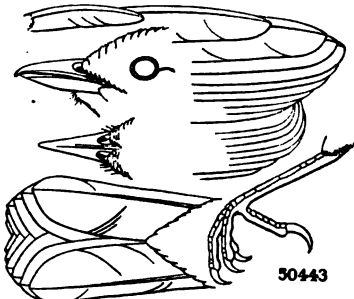
3. DULUS dominicus.



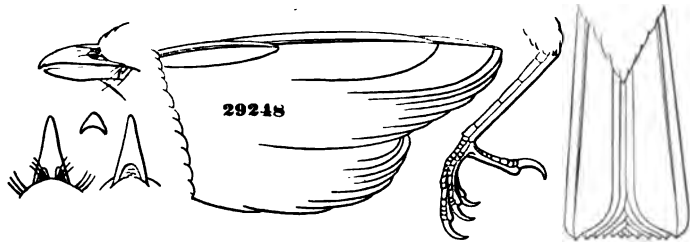
1. *VIREOSYLVA olivacea*.



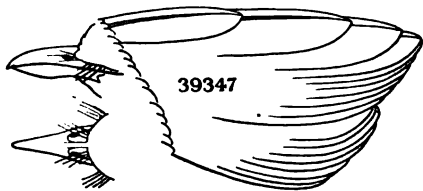
2. *VIREOSYLVA gilva*.



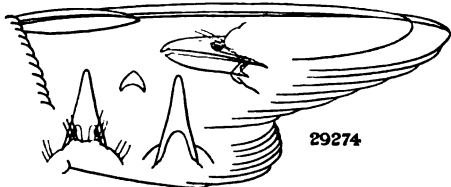
3. *PACHYSYLVA decurtata*.



4. *VIREO noveboracensis*.



5. *Vireo (VIREONELLA) latimeri*.

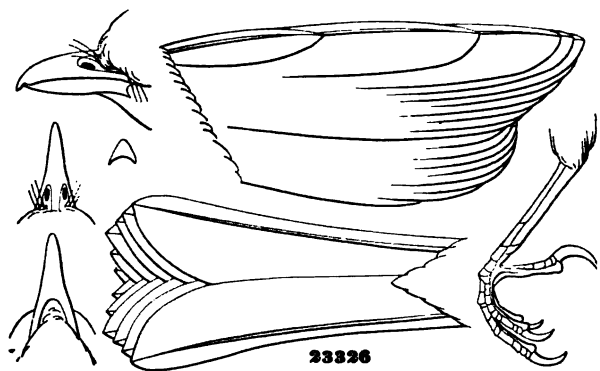


6. *LANIVIREO solitarius*.

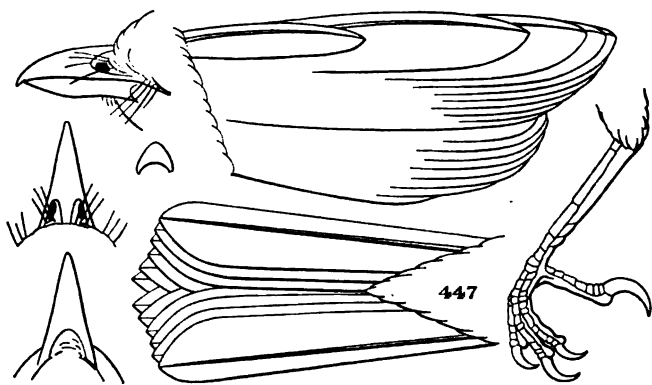


7. *NEOCHLOE brevipennis*.

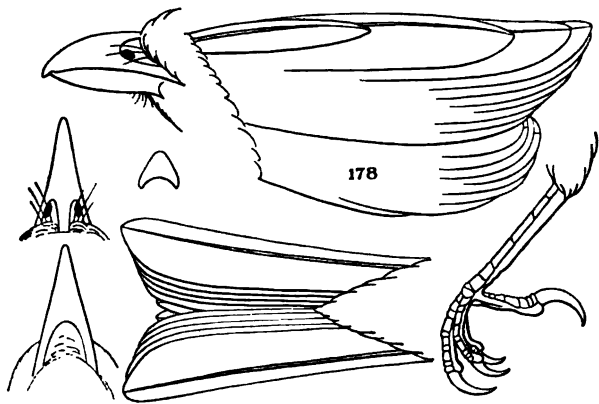




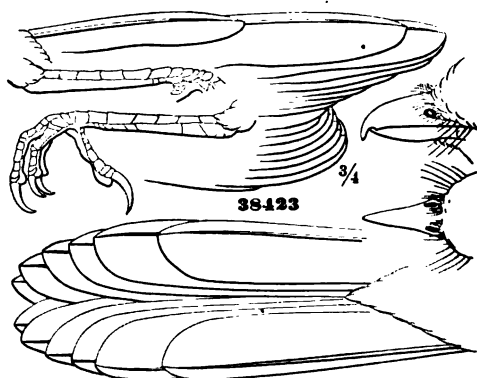
1. *LALETES osburni*.



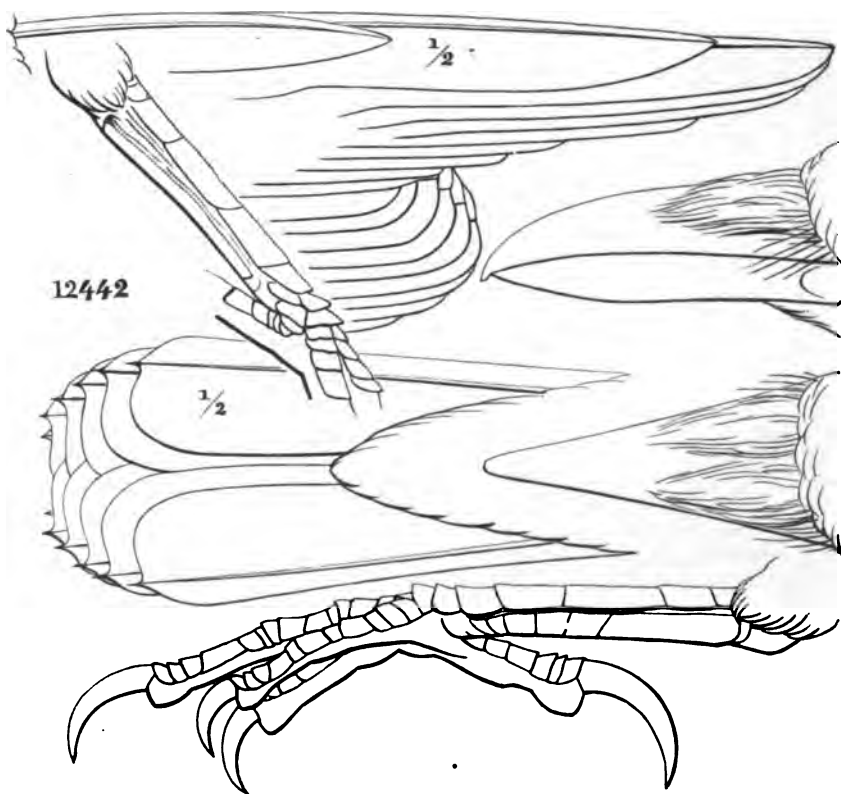
2. *VIREOLANIUS melitophrys*.



3. *CYCLARHIS guianensis*.

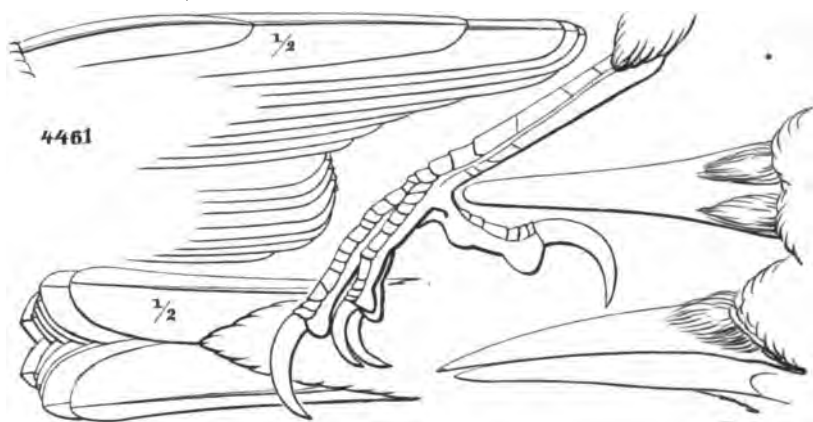


1. LANIUS excubitorides.

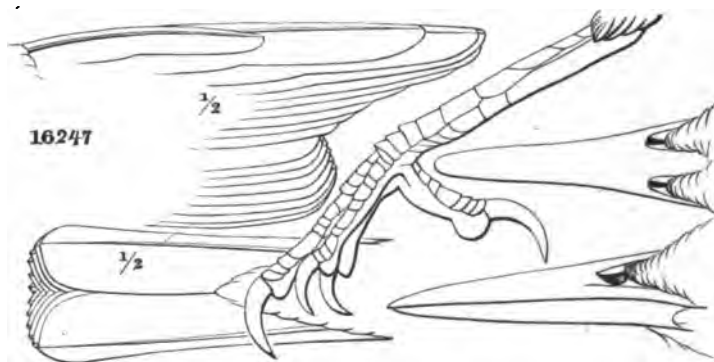


2. CORVUS ossifragus.

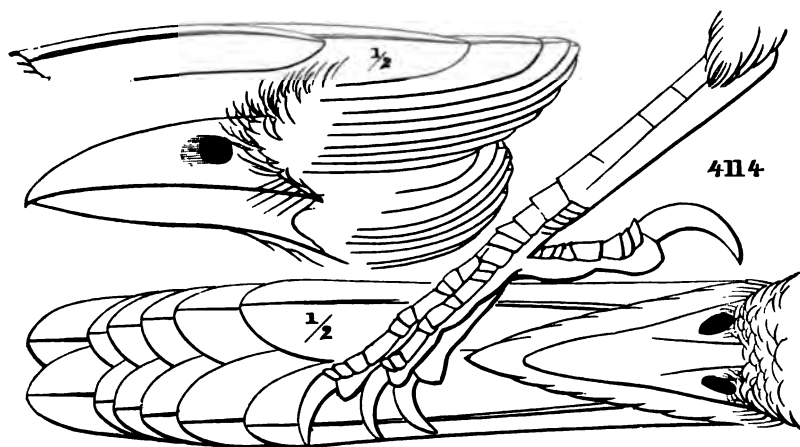




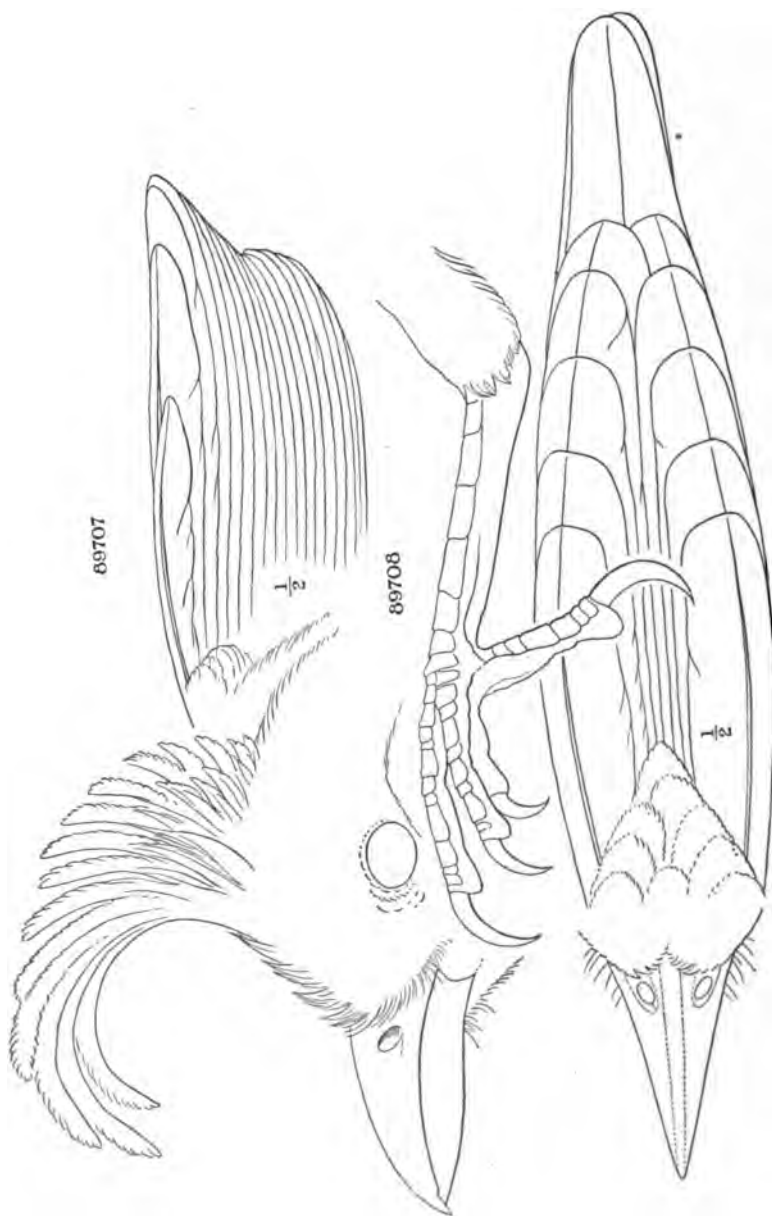
1. *NUCIFRAGA columbiana*.



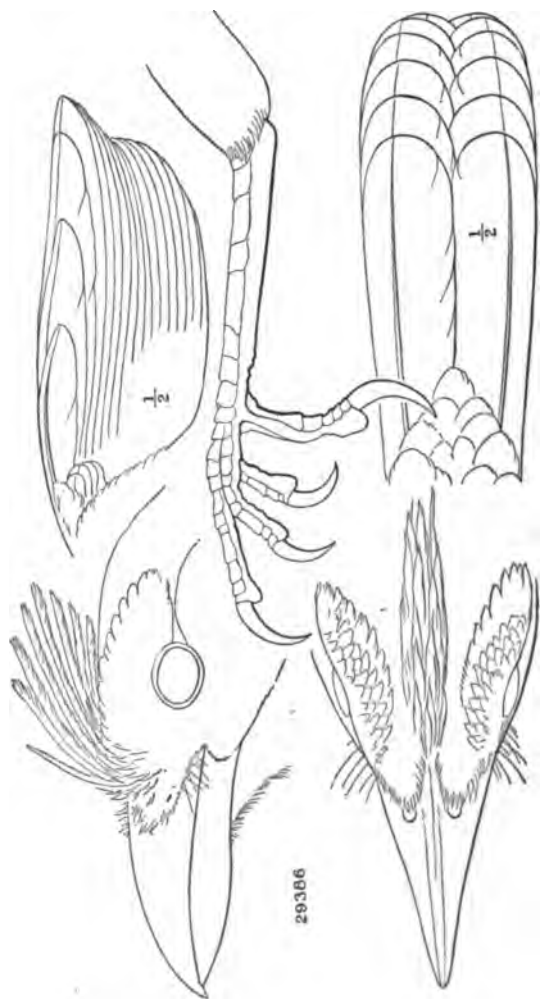
2. *CYANOCEPHALUS cyanocephalus*.



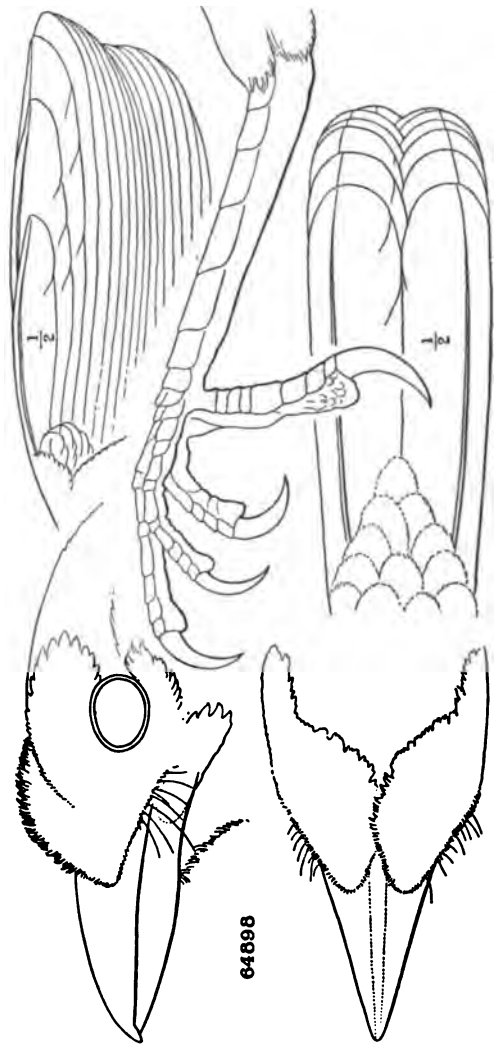
3. *PSILORHINUS morio*.



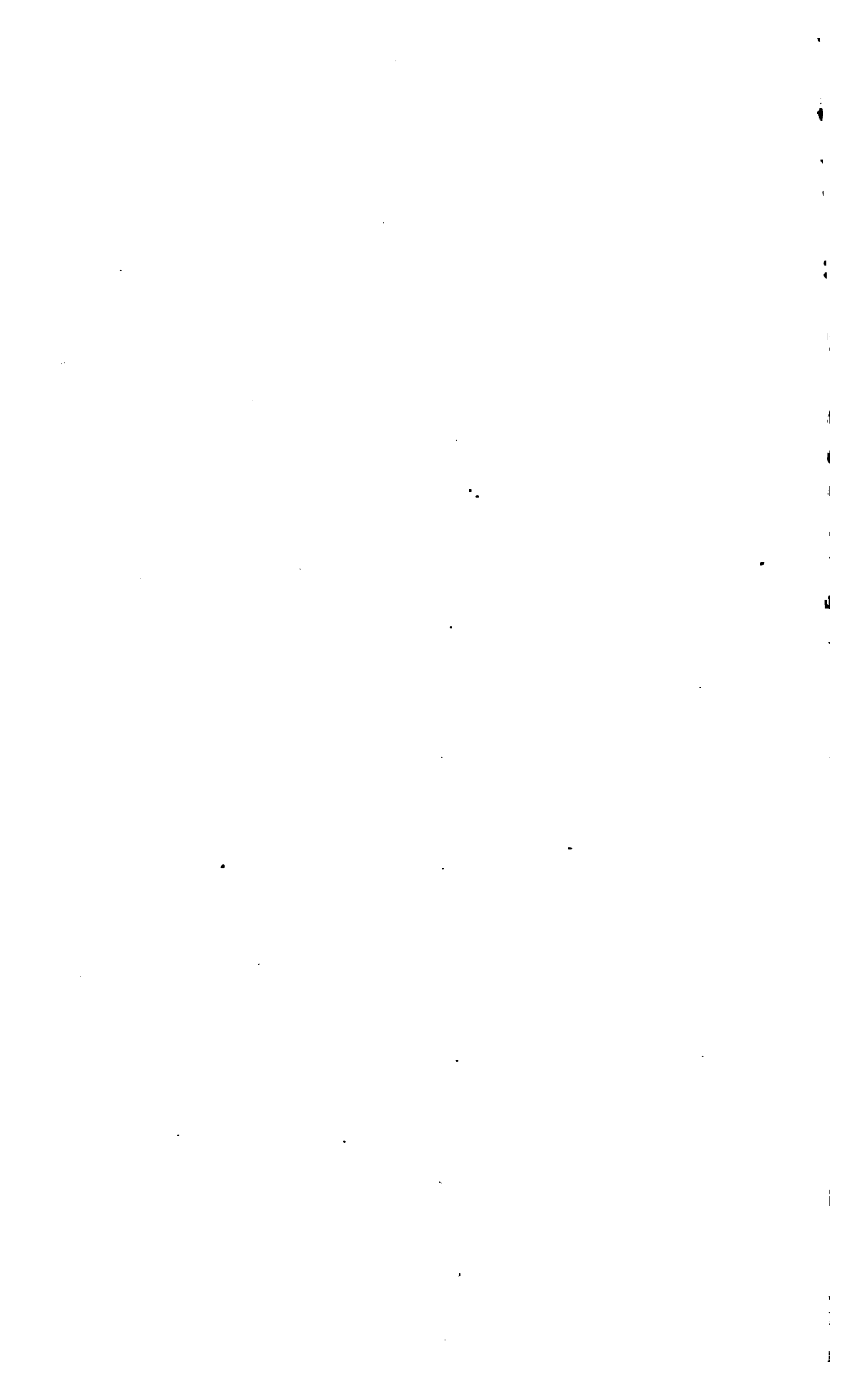
1. *CALOCITTA formosa*.

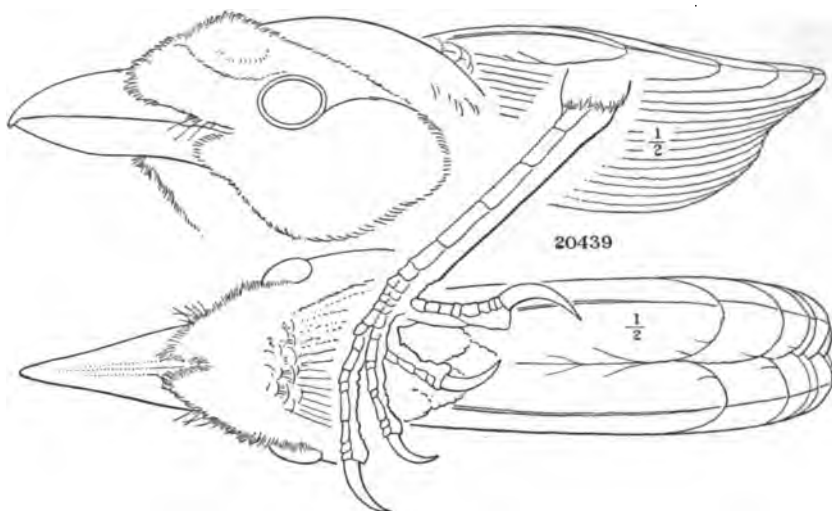


I. CISSILOPHA san-blasiana.

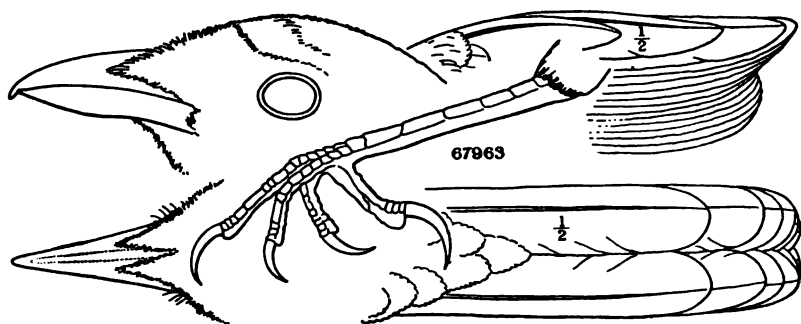


1. CYANOCORAX zeleboni.

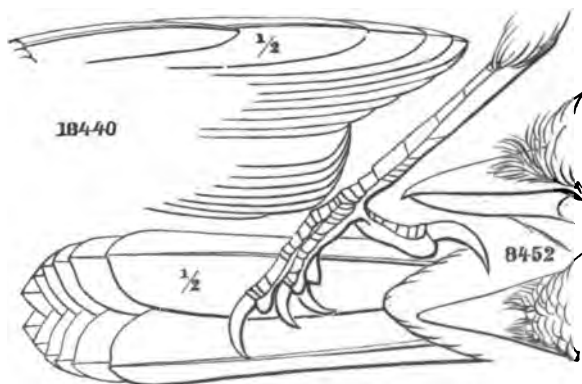




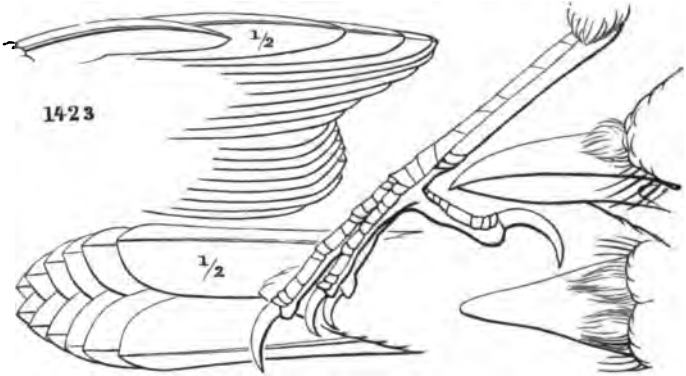
1. *CYANOLYCA mitrata*.



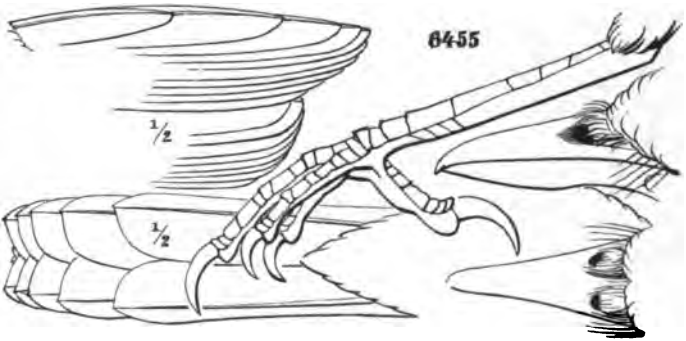
2. *CYANOLYCA argentigula*.



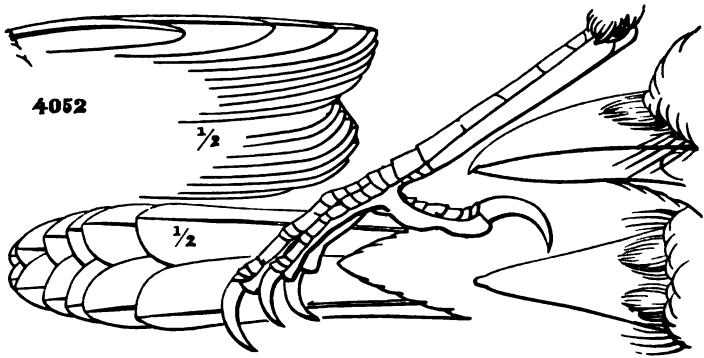
3. *PERISOREUS canadensis*.



1. *CYANOCITTA cristata*.



2. *APHELOCOMA californica*.

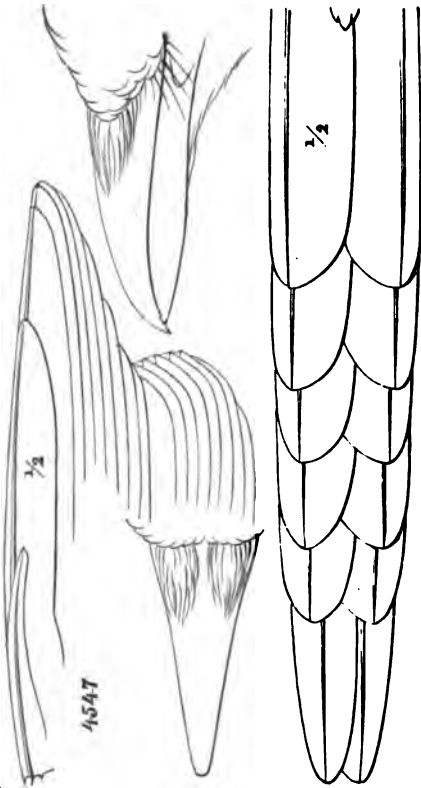


3. *XANTHOURA luxuosa*.

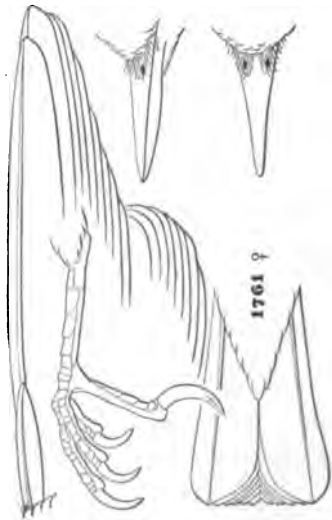




2. *CHAMÆA fasciata*.



1. *PICA hudsonica*.



4. *SITTA carolinensis*.



3. *CERTHIA americana*.

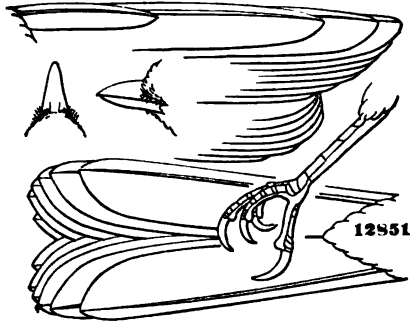




1. *BÆOLOPHUS bicolor*.

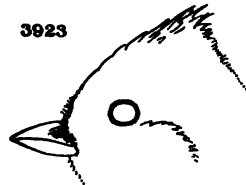


2. *BÆOLOPHUS bicolor*.

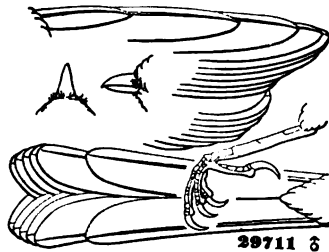


6. *PENTHESITES stricapillus*.

3923

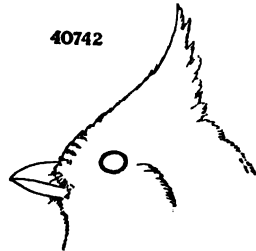


3. *BÆOLOPHUS inornatus*.

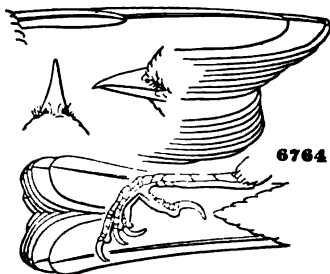


7. *PSALTRIPARUS minimus*.

40742



4. *BÆOLOPHUS wollweberi*.

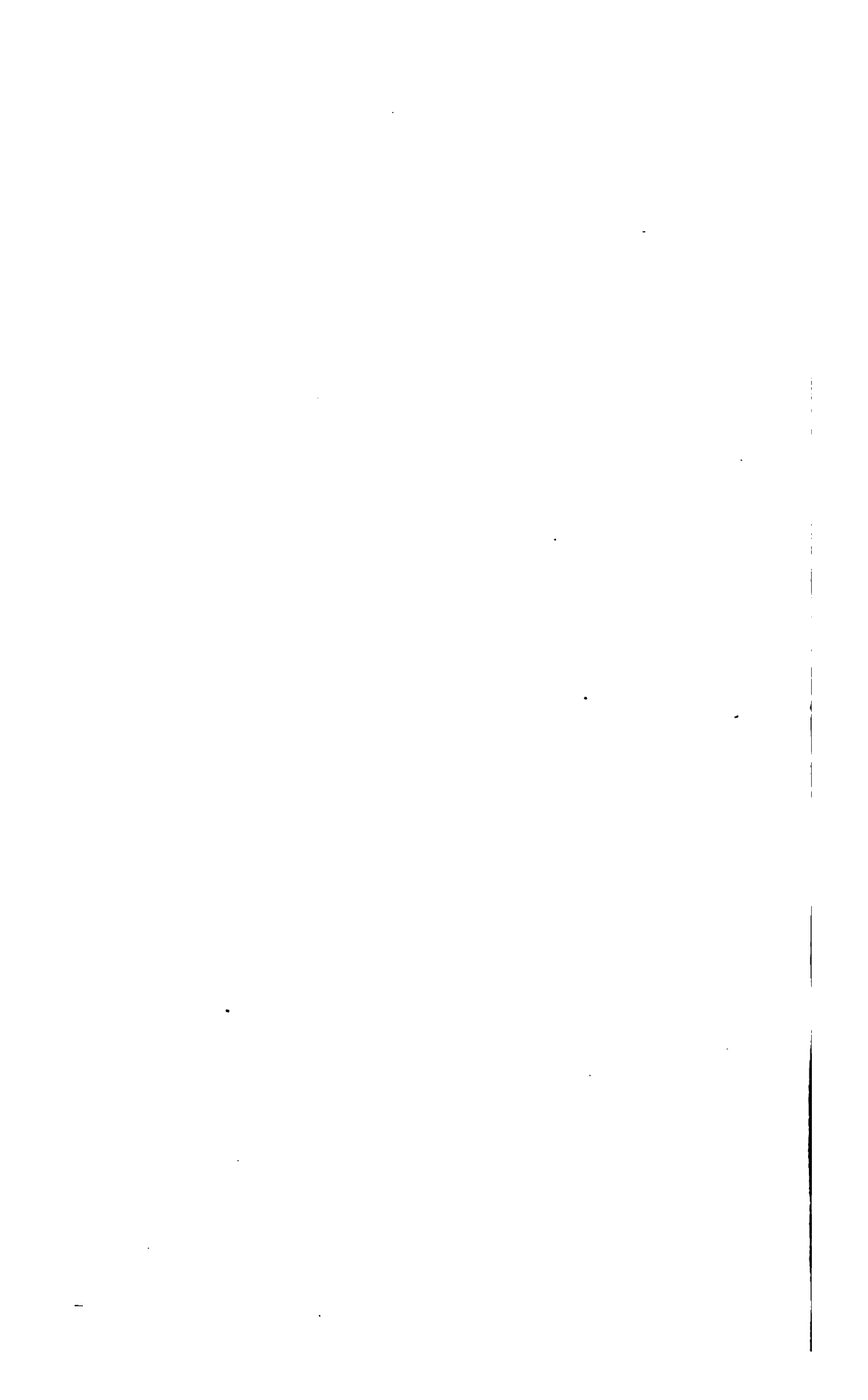


8. *AURIPARUS flaviceps*.

92200



5. *LOPHOPHANES cristatus*.

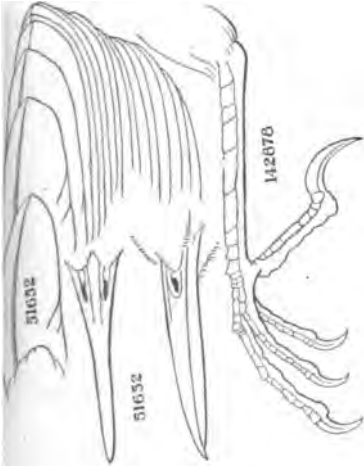




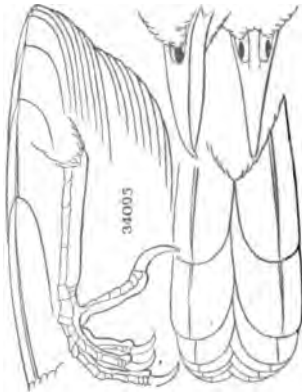
3. CATHERPES mexicanus.



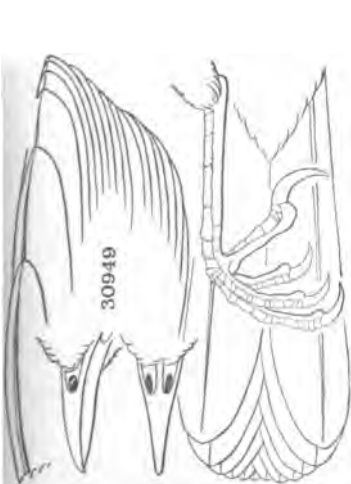
6. SALPINCTES obsoletus.



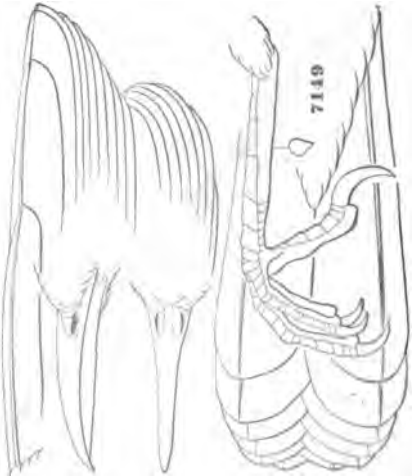
2. HYLORCHILUS sumichrasti.



5. PHEUGOPEDIUS fasciato-ventris.

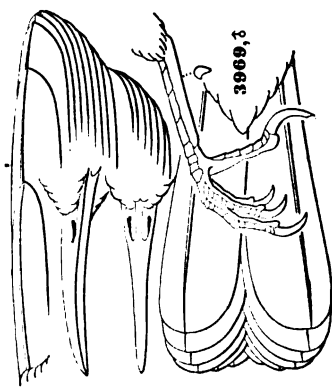


1. CINNYCERTHIA unibrunnea.

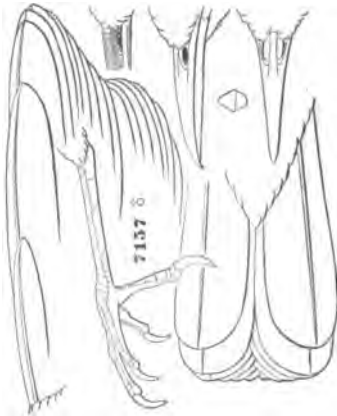


4. HELEODYTES brunneicapillus.

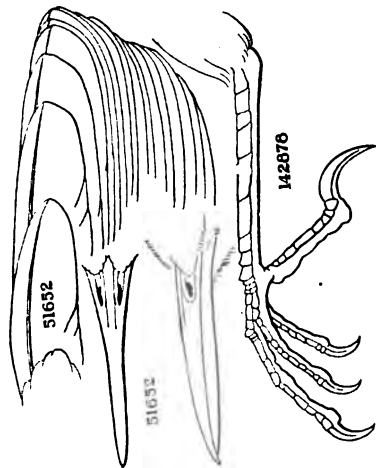




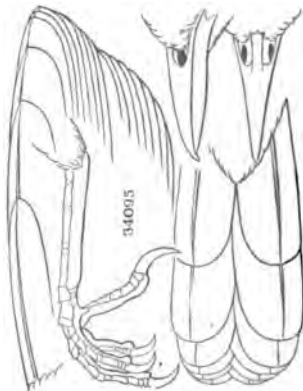
3. CATHERPES mexicanus.



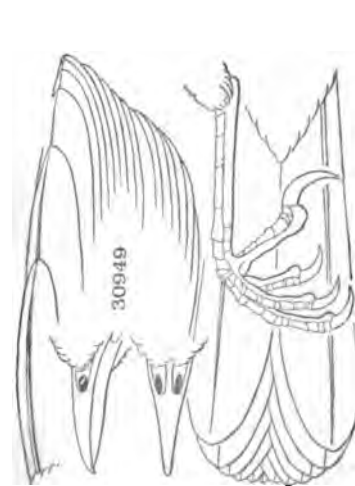
6. SALPINCTES obsoletus.



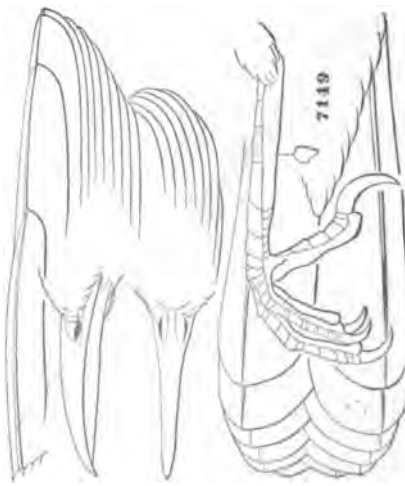
2. MYLORCHILUS sumichrasti.



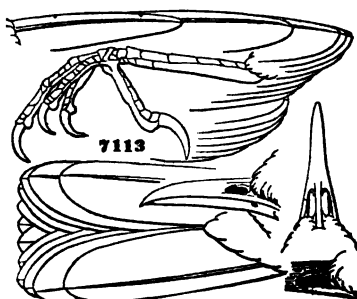
5. PHEUGOPEDIUS fasciato-ventris.



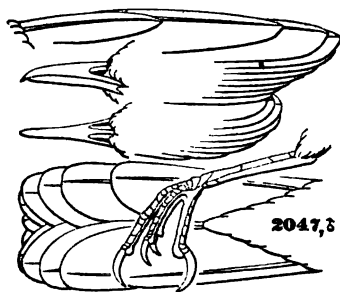
1. CINNYCERTHIA unibrunea.



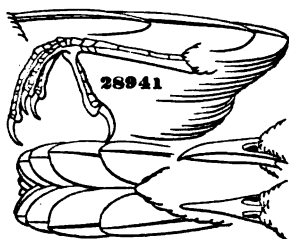
4. HELEDYTES brunneicapillus.



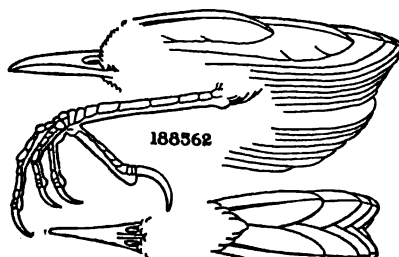
1. *THRYOTHORUS ludovicianus*.



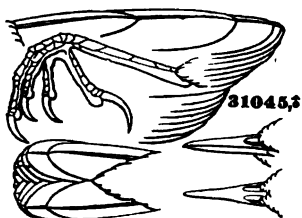
2. *THRYOMANES bewickii*.



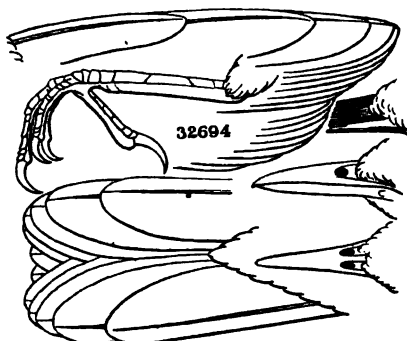
3. *TROGLODYTES aedon*.



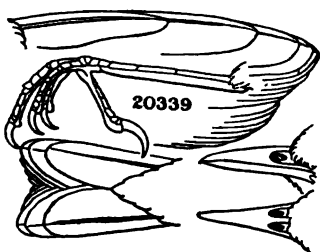
4. *THRYORCHILUS browni*.



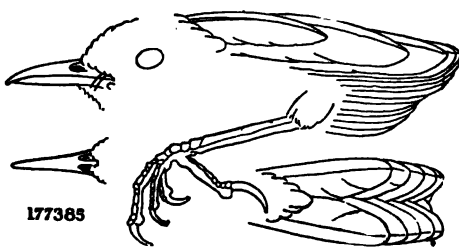
5. *OLBIORCHILUS hiemalis*.



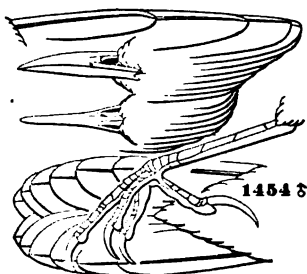
6. *THRYOPHILUS rufalbus*.



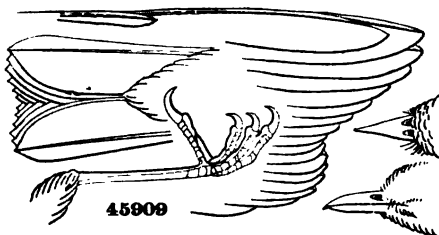
8. *HENICORHINA protheleuca*.



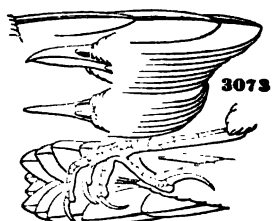
7. *NANNORCHILUS leucogaster*.



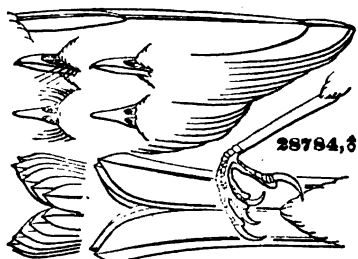
1. TELMATODYTES palustris.



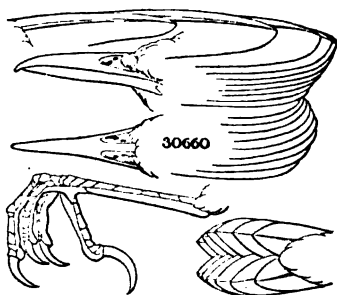
5. ACANTHOPNEUSTE borealis.



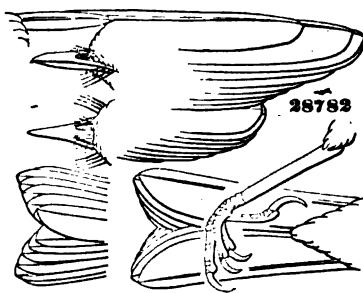
2. CISTOTHORUS stellaris.



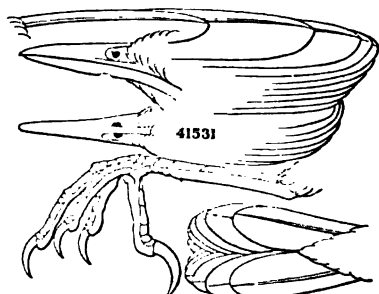
6. REGULUS satrapa.



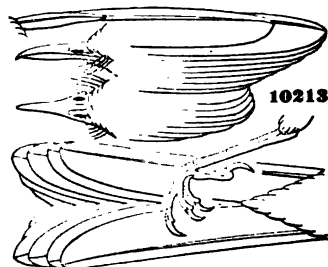
3. MICROCERCULUS philomela.



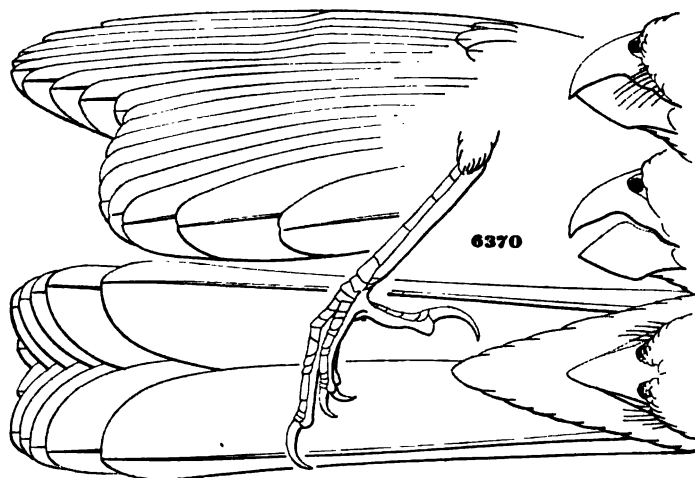
7. Regulus (CORTHYLIO) calendula.



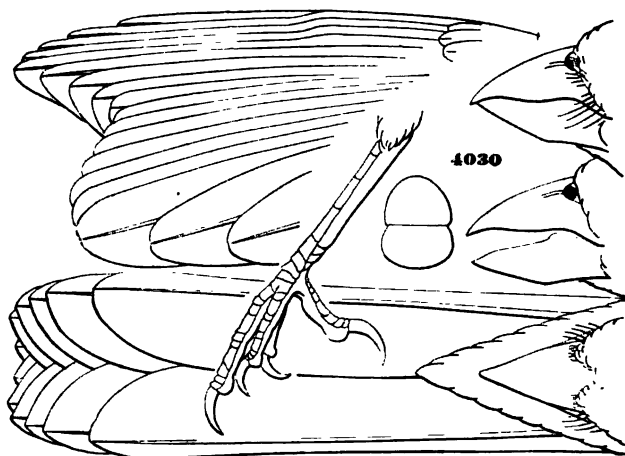
4. LEUCOLEPIS lawrencii.



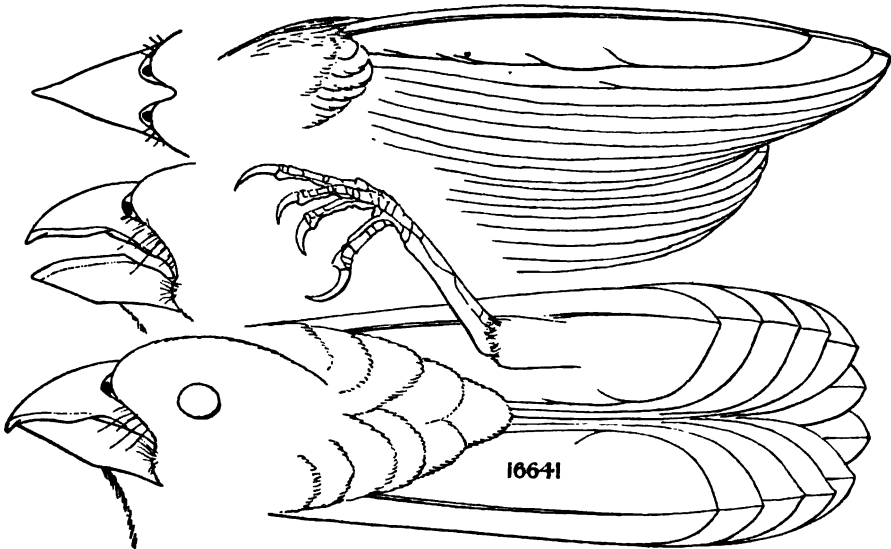
8. POLIOPTILA caerulea.



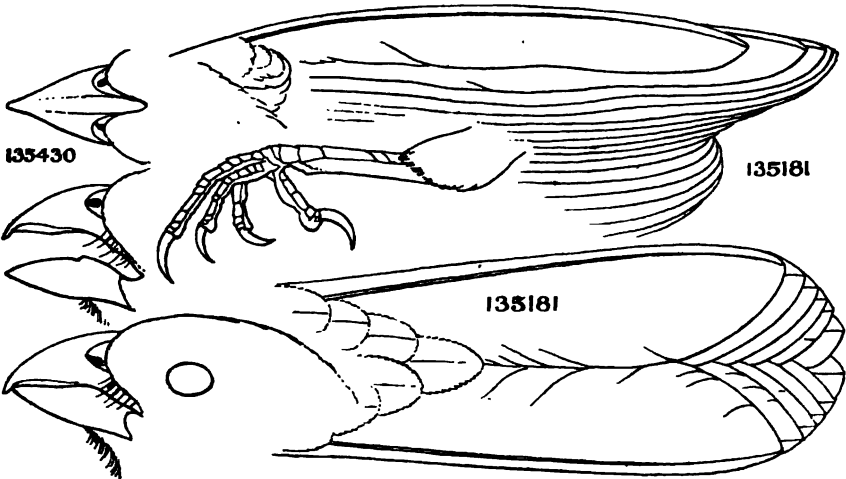
1. *PYRRHULOXIA sinuata*.



2. *CARDINALIS cardinalis*.

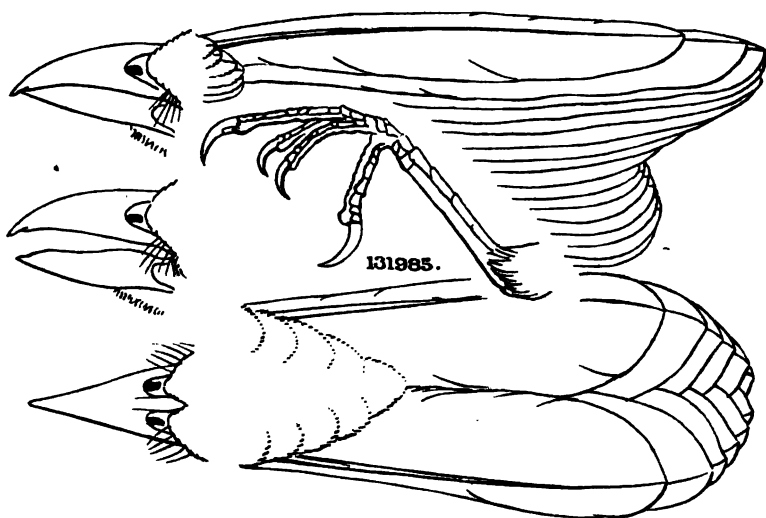


1. PITYLUS grossus.

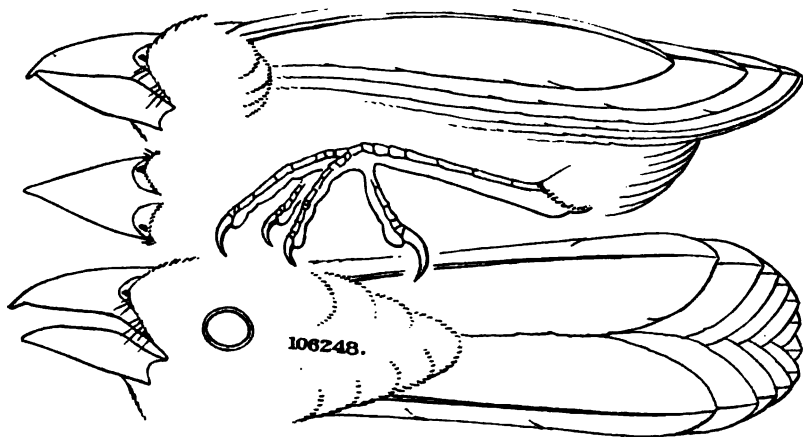


2. RHODOTHPRAUPIS celano.





1. SALTATOR magnoides.



2. SALTATOR isthmicus.



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